Series 1962, No. 9 Issued October 1965

SOIL SURVEY

Gordon County, Georgia

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
In cooperation with
UNIVERSITY OF GEORGIA, COLLEGE OF AGRICULTURE
AGRICULTURAL EXPERIMENT STATIONS

HOW TO USE THE SOIL SURVEY REPORT

THIS SOIL SURVEY of Gordon County will serve several groups of readers. It will help crop and livestock farmers in planning the kind of management that will protect their soils and provide good yields; assist engineers in selecting sites for roads, buildings, lakes, ponds, and other structures; aid managers of forest and woodland; add to the soil scientists' knowledge of soils; and help prospective buyers and others in appraising a farm or other tract.

Locating the soils

At the back of this report is an index map and a soil map consisting of many sheets. On the index map are rectangles numbered to correspond to the sheets of the soil map so that the sheet showing any area can be located easily. On each map sheet, the soil boundaries are outlined and there is a symbol for each kind of soil. The soil symbol is inside the area if there is room enough; otherwise, it is outside the area and a pointer shows where it belongs. For example, an area on the map has the symbol Atk. The legend for the set of maps shows that this symbol identifies Atkins silt loam. That soil and all others mapped in the county are described in the section "Descriptions of Soils."

Finding information

In the "Guide to Mapping Units" at the back of this report, the soils are listed in the alphabetic order of their map symbols. This guide shows where to find a description of each soil and a discussion of its capability unit, woodland group, and wildlife group. It also shows where to find the acreage of each soil, the yields that can be expected, and information about engineering uses of soils.

Farmers and those who work with farmers can learn about the soils on a farm by reading the description of each soil and of its capability unit and other groupings. A convenient way of doing this is to turn to the soil map and list the soil symbols on a farm and then to use the "Guide to Mapping Units" in finding the pages where each soil and its groupings are described.

Foresters and others interested in woodland can refer to the section "Woodland." In that section the soils in the county are placed in groups according to their suitability for trees, and the management of each group is discussed.

Game managers, sportsmen, and others concerned with wildlife will find information about the main kinds of wildlife and their food and cover in the section "Wildlife and Fish."

Engineers and builders will find in the section "Engineering Characteristics of the Soils" tables that give engineering descriptions of the soils in the county, that name soil features that affect engineering practices and structures, and that rate the soils according to their suitability for several kinds of engineering work.

Scientists and others who are interested can read about how the soils were formed and how they are classified in the section "Genesis, Morphology, and Classification of Soils."

Students, teachers, and other users will find information about soils and their management in various parts of the report, depending on their particular interest.

Newcomers in Gordon County will be especially interested in the section "General Soil Map," where broad patterns of soils are described. They may also be interested in the section "General Nature of the Area."

* * * * *

Fieldwork for this survey was completed in 1962. Unless otherwise stated, all statements in the report refer to conditions in the county at the time the survey was in progress. The soil survey was made cooperatively by the U.S. Department of Agriculture and the University of Georgia, College of Agriculture, Agricultural Experiment Stations. It is part of the technical assistance given by the Soil Conservation Service to the Coosa River Soil and Water Conservation District.

Cover picture: In foreground, permanent pasture and corn on Stendal, Philo, and Pope soils; in background, shaly ridges of Montevallo and Klinesville soils.

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Issued October 1965

SOIL SURVEY OF GORDON COUNTY, GEORGIA

REPORT BY GLENN L. BRAMLETT, SOIL CONSERVATION SERVICE

SOILS SURVEYED BY GLENN L. BRAMLETT AND HOWARD T. STONER, SOIL CONSERVATION SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE, IN COOPERATION WITH THE UNIVERSITY OF GEORGIA, COLLEGE OF AGRICULTURE, AGRICULTURAL EXPERIMENT STATIONS

GORDON COUNTY, in the northwestern part of Georgia, has a total area of 358 square miles, or 229,120 acres (fig. 1). It is bounded on the north by Murray, Whitfield, and Walker Counties; on the east by Gilmer and Pickens Counties; on the south by Floyd and Bartow Counties; and on the west by Walker and Floyd Counties. Calhoun, the county seat, is near the center of the county and on the east side of the Oostanaula River.

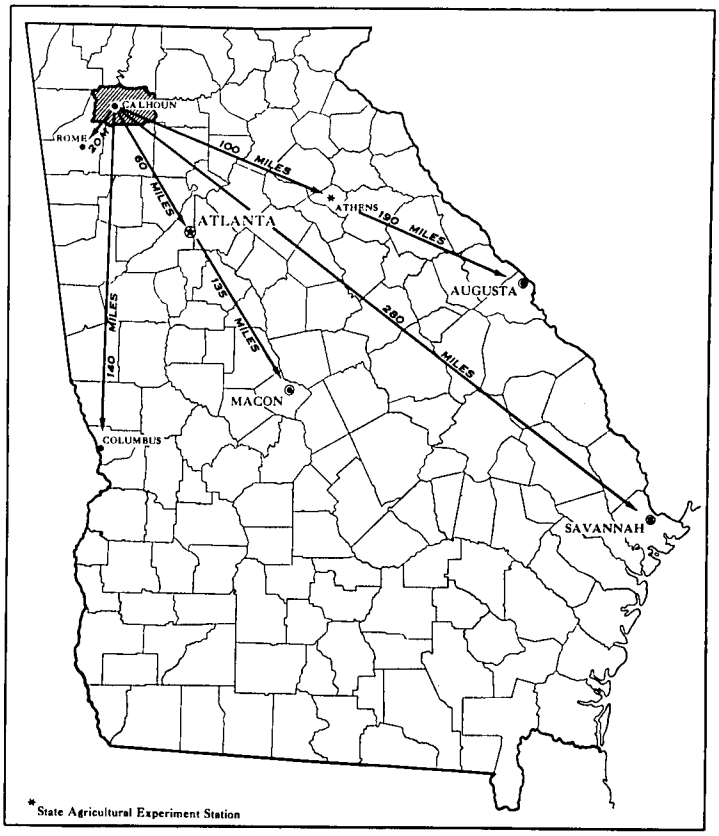

Figure 1.—Location of Gordon County in Georgia.

Gordon County is a broad rolling valley, with low mountains on the east and west sides. The Coosawattee and Conasauga Rivers enter on the north and converge near Resaca. From this point, they form the Oostanaula River, which meanders across the county in a southwesterly direction. For about 6 years, from 1819 to 1825, the Cherokee Indians made this area their headquarters, probably because fish and wildlife were plentiful. The county has a comfortable humid climate and almost unlimited water resources. It has been primarily agricultural since its early settlement. Its many different kinds of soils are suited to a wide range of crops.

General Nature of the Area

This section discusses the geology, physiography, and drainage of the county and gives some facts about the climate and water supply.

Geology, Physiography, and Drainage

Gordon County lies mostly within the narrow belt known as the Appalachian Valley and Ridges. A small area in the eastern part extends into the Appalachian Mountains. Except for the ridges formed by Horn and Chestnut Mountains, the Appalachian Valley is a nearly flat surface or peneplain. It is underlain by folded, faulted, and stratified sedimentary rocks of the Paleozoic era. Geologists have classified these rocks as the following formations: Conasauga (shale and limestone), Knox dolomite (limestone), Rome (shale and limestone), Floyd (shale), Fort Payne (limestone or cherty limestone), and Red Mountain (sandstone and shale) (*3*).[1] The small area in the Appalachian Mountains is underlain by such metamorphic rock as biotite gneiss, phyllite, sericitic schist, and quartz mica schist. This area is more dissected than the rest of the county.

The elevation of the county ranges between 600 and 1,700 feet. The highest elevation is on the Appalachian Mountains. The lowest is where the Oostanaula River leaves the county. Horn Mountain has an elevation of 1,600 feet. The broad central valley between Horn Mountain and the Appalachian Mountains has an elevation of 750 to 950 feet. The relief ranges from nearly level on flood plains and stream terraces to very steep on mountain slopes and on escarpments near streams. The flood plains are narrow, except along the Oostanaula

[1] Italic numbers in parentheses refer to Literature Cited, page 165.

TABLE 1.--TEMPERATURE AND PRECIPITATION DATA

Month	Temperature				Precipitation		
	Average daily maximum	Average daily minimum	Two years in 10 will have at least 4 days with--		Average total	One year in 10 will have--	
			Maximum temperature equal to or higher than--	Minimum temperature equal to or lower than--		Less than--	More than--
	°F.	°F.	°F.	°F.	Inches	Inches	Inches
January----	53.8	30.3	68	16	5.75	2.6	11.2
February---	55.9	32.8	71	18	5.62	2.3	10.1
March------	62.9	38.0	77	24	5.71	3.3	8.0
April------	73.0	44.4	85	33	4.83	2.1	7.6
May--------	81.0	53.4	91	42	3.77	2.1	5.7
June-------	88.0	61.6	97	53	3.65	1.5	6.0
July-------	89.7	64.7	97	60	4.88	1.9	9.0
August-----	89.9	63.3	97	57	4.08	1.6	6.6
September--	85.3	57.4	95	48	3.17	0.6	7.3
October----	75.1	47.2	87	34	3.07	0.5	7.0
November---	63.1	35.4	76	23	3.67	1.4	6.8
December---	54.5	30.5	67	17	5.34	2.4	10.6
Year-----	72.7	46.6	[1]/100	[1]/14	53.54	42.2	62.6

[1] The extreme temperatures that will be equalled or exceeded (minimum equal or lower) on at least 4 days in 2 years out of 10.

River, where in places they are as much as 1½ miles in width.

The county lies entirely within the drainage basin of the Oostanaula River. The chief tributaries of the Oostanaula River are the Conasauga and Coosawattee Rivers and Salacoa and Oothkalooga Creeks. Salacoa Creek flows in a northerly direction and drains a larger area of the county than any other tributary. Most small streams also flow in a northerly direction.

The drainage pattern is the trellis type in the Appalachian Valley and Ridge section and the dendritic type in the Appalachian Mountains. Several large springs occur in the limestone and mountain sections, but the springs in the shale and cherty limestone belts are small and are intermittent.

Climate [2]

Gordon County is influenced in its climate by its latitude and its location in the foothills of the Appalachian Mountains. In most places the elevation is between 600 and 800 feet above sea level, but in the eastern and western parts there are mountain peaks that reach heights of 1,600 to 1,700 feet. Prolonged periods of extremely hot or cold weather rarely occur, and precipitation generally is plentiful throughout the year, though considerably heavier during the cool season. Table 1 gives approximate temperature and precipitation data by months, based on short-term weather records in Gordon County and records in nearby counties. Tables 2, 3, and 4 give additional precipitation data.

Summers are characterized by moderately warm days and mild to comfortably cool nights. Daytime temperatures reach 90°F. on no more than one-half of the days during June, July, and August. Temperatures as high as 100° occur less often than every other year. The long-term average temperature is less than 78° for the warmest month, and no month's minimum temperature averages as high as 65°.

Winters may be relatively cold, but periods of cold weather normally are short and are followed by comparatively mild temperatures. Cold spells that drop the temperature to below 15° occur during most winters, and every few years a reading of near zero can be expected. Because of the differences in elevation in the county, there are wide variations in early morning temperatures within relatively short distances. At times, minimum temperatures may be as much as 10 to 15 degrees lower in the valleys than on the nearby slopes. A knowledge of local temperature characteristics can be used to advantage in selecting orchard sites or in planning spring planting schedules.

[2] This section was prepared by HORACE S. CARTER, State climatologist, U.S. Weather Bureau, Athens, Ga.

The average freeze-free growing season is about 215 days but, again, there may be wide variations within short distances. Table 5 gives the probability of freezes of specified intensity occurring after certain dates in spring and before certain dates in fall.

Precipitation averages more than 53 inches annually and is well distributed throughout the year. Winter is the wettest season. About 42 percent of the annual rainfall occurs from December through March. October, normally the driest month, averages about 3 inches. Most of the precipitation in winter occurs as a result of the interaction between moist warm air masses from the south and cold air masses from the north. The low pressure centers and fronts that produce these conditions usually are extensive and result in rather uniform rainfall that may continue for several hours and cover large areas. Rains of 2 inches or more in 24 hours occur mostly in winter and in spring. During the warm season, the precipitation occurs primarily as showers, which vary much more in amount and in area coverage than do the rains of winter. Although these summer showers generally are brief, they are sometimes intense.

Thunderstorms can be expected on about 60 days each year and are most likely to occur during the months of

TABLE 2.--AVERAGE NUMBER OF DAYS PER YEAR (BY MONTH) WITH RAINFALL EQUAL TO OR GREATER THAN STATED AMOUNTS

[Based on record for 10-year period--1952 through 1961]

Rainfall equal to or greater than--	Average number of days in--												
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
0.10 inch---	8	9	8	7	8	6	8	6	5	4	7	7	83
0.25 inch---	5	7	6	6	5	4	6	4	4	3	5	4	59
0.50 inch---	4	4	3	3	3	3	4	2	2	2	3	3	36

TABLE 3.--NUMBER OF DAYS IN 10 YEARS (BY MONTH) WITH RAINFALL EQUAL TO OR GREATER THAN STATED AMOUNTS

Rainfall equal to or greater than--	Total number of days in--												
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	10-year period
1 inch------	15	21	17	15	13	12	9	8	12	9	12	18	161
2 inches----	3	5	2	5	0	2	0	0	4	2	2	9	34
3 inches----	1	1	1	1	0	0	0	0	1	0	0	5	10
4 inches----	0	0	0	0	0	0	0	0	0	0	0	1	1

TABLE 4.--NUMBER OF 2-, 4-, AND 6-WEEK PERIODS IN 10 YEARS (BY MONTHS) WITH NO DAY HAVING 0.25 INCH OR MORE OF PRECIPITATION

[Periods listed in the month during which the greater part occurred]

Periods equal to or greater than--	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	10-year period
2 weeks-----	3	2	2	2	4	9	6	5	8	7	3	6	57
4 weeks-----	1	0	0	0	2	2	1	2	3	4	0	0	15
6 weeks-----	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE 5.--PROBABILITIES OF LAST FREEZING TEMPERATURE IN SPRING AND FIRST FREEZING TEMPERATURE IN FALL

Probability	Dates for given probability and temperature		
	24° F.	28° F.	32° F.
Spring:			
1 year in 10, after----	Mar. 18	Apr. 1	Apr. 15
2 years in 10, after---	Mar. 14	Mar. 20	Apr. 12
5 years in 10, after---	Feb. 25	Mar. 15	Apr. 1
Fall:			
1 year in 10, before---	Nov. 12	Nov. 1	Oct. 20
2 years in 10, before--	Nov. 20	Nov. 8	Oct. 29
5 years in 10, before--	Nov. 28	Nov. 15	Nov. 7

May through August. Occasionally, these storms are accompanied by damaging winds and hail. Tornadoes are rare in Gordon County, but a severe storm that occurred in April 1957 injured about 20 persons and damaged or destroyed 70 buildings and 10 house trailers in or near Calhoun.

Only light snowfall may be expected during most winters. Some accumulation on the ground is likely about 2 years out of 3, but normally this accumulation lasts only 1 or 2 days.

Based on available records at the Rome Airport, in Floyd County, the monthly relative humidity averages in the Gordon County area range from 80 to 90 percent in early morning and from 47 to 59 percent in early afternoon. The highest morning averages occur late in summer and in fall, and the higher afternoon readings occur in winter. The lower averages generally occur in spring.

Water Supply

Gordon County lies within the drainage basin of the Oostanaula River and its principal tributaries, the Coosawattee and Conasauga Rivers. These rivers are fed by numerous creeks. There is a good supply of water for both household and livestock use in most parts of the county. Only in the section known as Dry Valley in the south-central part is a good supply difficult to obtain.

The early pioneers in the county generally settled near good springs. When the springs could not supply enough water for the increasing population, wells and cisterns were dug. Shallow wells are now being replaced by drilled wells that are from 75 to 250 feet deep. In recent years many farmers have constructed ponds to supplement the water supply and to provide fishing.

Water for Calhoun is obtained from the Oostanaula River. This city operates its own treatment and distribution system. The system has a storage capacity of 2,850,000 gallons and a pumping and filtering capacity of 4,300,000 gallons per day. Fairmount also operates its own water system. Many of the springs used by the pioneers are still being used by individuals and by small towns.

How Soils Are Mapped and Classified

Soil scientists made this survey to learn what kinds of soils are in Gordon County, where they are located, and how they can be used. They went into the county knowing they likely would find many soils they had already seen and perhaps some they had not. As they traveled over the county, they observed steepness, length, and shape of slopes; size and speed of streams; kinds of native plants or crops; kinds of rock; and many facts about the soils. They dug many holes to expose soil profiles. A profile is the sequence of natural layers, or horizons, in a soil; it extends from the surface down into the parent material that has not been changed much by leaching or by roots of plants (fig. 2).

The soil scientists made comparisons among the profiles they studied, and they compared these profiles with those in counties nearby and in places more distant. They classified and named the soils according to nationwide uniform procedures. To use this report efficiently, it is necessary to know the kinds of groupings most used in a local soil classification.

Soils that have profiles almost alike make up a soil series. Except for different texture in the surface layer, the major horizons of all the soils of one series are similar in thickness, arrangement, and other important characteristics. Each soil series is named for a town or other geographic feature near the place where a soil of that series was first observed and mapped. Christian and Klinesville, for example, are the names of two soil series in Gordon County. All the soils in the United States having the same series names are essentially alike in those characteristics that go with their behavior in the natural, untouched landscape. Soils of one series can differ somewhat in texture of the surface soil and in slope, stoniness, or some other characteristic that affects use of the soils by man.

Many soil series contain soils that differ in texture of their surface layer. According to such differences in texture, separations called soil types are made. Within a series, all the soils having a surface layer of the same texture belong to one soil type. Christian fine sandy loam and Christian fine sandy clay loam are two soil types in the Christian series. The difference in texture of their surface layers is apparent from their names.

Some soil types vary so much in slope, degree of erosion, number and size of stones, or some other feature affecting their use, that practical suggestions about their management could not be made if they were shown on the soil map as one unit. Such soil types are divided into phases. The name of a soil phase indicates a feature that affects management. For example, Christian fine sandy loam, 2 to 6 percent slopes, is one of several phases of Christian fine sandy loam, a soil type that ranges from gently sloping to moderately steep.

After a guide for classifying and naming the soils had been worked out, the soil scientists drew the boundaries of the individual soils on aerial photographs. These photographs show woodlands, buildings, field borders, trees, and other details that help greatly in drawing boundaries accurately. The soil map in the back of this report was prepared from the aerial photographs.

The areas shown on a soil map are called mapping units. On most maps detailed enough to be useful in

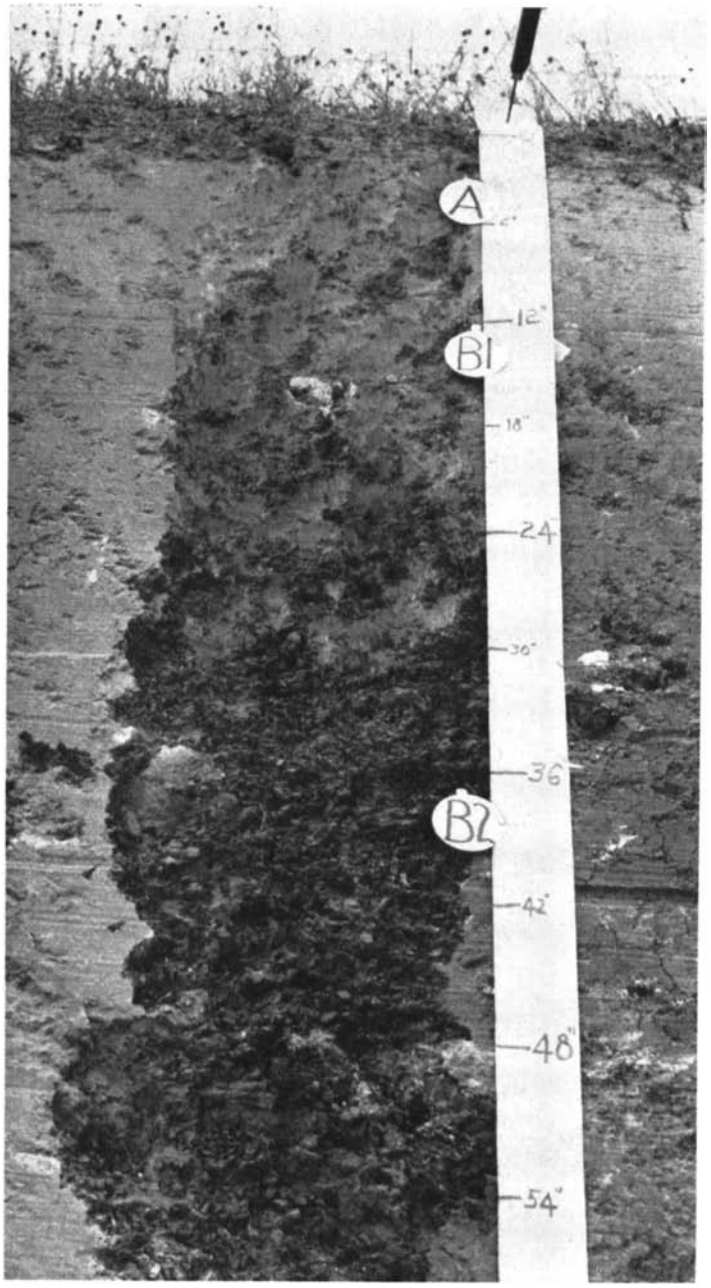

Figure 2.—**Profile of Christian fine sandy loam in a newly cut roadbank.**

planning management of farms and fields, a mapping unit is nearly equivalent to a soil type or a phase of a soil type. It is not exactly equivalent, because it is not practical to show on such a map all the small, scattered bits of soil of some other kind that have been seen within an area that is dominantly of a recognized soil type or soil phase.

In preparing some detailed maps, the soil scientists have a problem of delineating areas where different kinds of soils are so intricately mixed and occur in individual areas of such small size that it is not practical to show them separately on the map. Therefore, they show this mixture of soils as one mapping unit and call it a soil complex. Ordinarily, a soil complex is named for the major kinds of soil in it, for example, Stendal-Philo silt loams. Also, on most soil maps, areas are shown that are so rocky, so shallow, or so frequently worked by wind and water that they scarcely can be called soils. These areas are shown on a soil map like other mapping units, but they are given descriptive names, such as Gullied land or Sandy and gravelly land, and are called land types rather than soils.

While a soil survey is in progress, samples of soils are taken, as needed, for laboratory measurements and for engineering tests. Laboratory data from the same kinds of soils in other places are assembled. Data on yields of crops under defined practices are assembled from farm records and from field or plot experiments on the same kinds of soils. Yields under defined management are estimated for all the soils.

But only part of a soil survey is done when the soils have been named, described, and delineated on the map, and the laboratory data and yield data have been assembled. The mass of detailed information then needs to be organized in such a way that it is readily useful to different groups of readers, among them farmers, ranchers, managers of woodland, engineers, and homeowners. Grouping soils that are similar in suitability for each specified use is the method of organization commonly used in the soil survey reports. On basis of the yield and practice tables and other data, the soil scientists set up trial groups, and they test these groups by further study and by consultation with farmers, agronomists, engineers, and others. Then, the scientists adjust the groups according to the results of their studies and consultation. Thus, the groups that are finally evolved reflect up-to-date knowledge of the soils and their behavior under present methods of use and management.

General Soil Map

After study of the soils in a locality and the way they are arranged, it is possible to make a general map that shows several main patterns of soils, called soil associations. The eight soil associations in Gordon County are shown on the colored general soil map at the back of this report. Each association, as a rule, contains a few major soils and several minor soils, in a pattern that is characteristic although not strictly uniform.

The soils within any one association are likely to differ from each other in some or in many properties; for example, slope, depth, stoniness, or natural drainage. Thus, the general soil map shows, not the kind of soil at any particular place, but patterns of soils, in each of which there are several different kinds of soils.

Each soil association is named for the major soil series in it, but, as already noted, soils of other series may also be present. The major soils of one soil association may also be present in another association, but in a different pattern.

The general map showing patterns of soils is useful to people who want a general idea of the soils, who want to compare different parts of a county, or who want to know the possible location of good-sized areas suitable for a certain kind of farming or other land use.

The eight soil associations in Gordon County are discussed in the following paragraphs.

1. Christian-Clarksville-Fullerton association

Well-drained soils of the uplands; underlain by cherty limestone or sandstone

This is an area of hills and ridges marked by small shallow depressions, a few lime sinks, and nearly level areas in draws and along intermittent streams. The larger and higher ridges are nearly parallel and extend in a northeast-southwest direction. Many of the lower ridges are irregularly shaped. The four separate tracts of this association are in the central part of the county and make up about 20 percent of the total acreage of the county.

The Christian, Clarksville, and Fullerton soils, which have about equal acreage, occupy 62 percent of the association. They are well-drained soils of the uplands. The Christian soils have a friable, dark yellowish-brown surface layer and a firm, mottled, yellowish-red to dark-red subsoil. The Clarksville soils have a brown to pale-brown surface layer over a yellowish-brown subsoil and are cherty throughout the profile. The Fullerton soils are moderately cherty and have a yellowish-brown surface layer and a very firm, yellowish-red subsoil. The brown, well-drained, somewhat sandy Hartsells soils occupy about 13 percent of the acreage. Small acreages of red Dewey and Waynesboro soils are also on the uplands. All of the soils of the uplands have developed in residuum weathered from limestone and sandstone.

Also in the association are small areas of Landisburg, Taft, Guthrie, Huntington, and Melvin soils, and Local alluvial land, moderately wet. The Landisburg and Taft soils have a distinct fragipan, or compact layer. The Landisburg soils are on toe slopes and in depressions; the Taft, on low stream terraces; and the Guthrie, in small scattered depressions. The Guthrie soils are poorly drained and have a mottled, clayey subsoil. The well-drained Huntington soils are in depressions and at the head of draws. The poorly drained Melvin soils are on flood plains. Local alluvial land, moderately wet, is at the head of draws and at the base of slopes.

About 60 percent of the association is cleared. Cultivated crops are grown mainly on the broad smooth hills and in the narrow draws. Pastures are mostly on the moderately well drained and somewhat poorly drained soils. Cotton is the main cash crop. Corn, small grain, and hay are grown chiefly for use on the farm. Crop yields are average for the county.

Wooded tracts are small and are scattered throughout the association. The largest tracts are on the steepest and most cherty soils. Loblolly pine and Virginia pine are growing on some formerly cultivated areas, whereas mixed stands of hardwoods or of hardwoods and pine are on the uneroded areas.

The farms in this association average 100 acres in size. They are managed by owner operators, part-time operators, and tenant farmers.

About 30 percent of the acreage is in capability classes II and III and is well suited to most cultivated crops. Most of the acreage, however, is in capability classes IV and VI and is not suited to cultivated crops but is fair to good for pasture. About 12 percent of the acreage is so steep and so cherty that it should remain in forest.

These soils are strongly acid and are moderately low to low in natural fertility. They are not highly productive in their natural state but respond to good management. Most locally grown crops are suitable if they are grown in proper sequence and heavily fertilized. Trees grow well on these soils.

2. Conasauga-Montevallo association

Well-drained to somewhat poorly drained soils of the uplands; underlain by shale or limestone

This is an area of low hills and broad, nearly level uplands. There are many drains that form shallow valleys. The level strips parallel to the drains generally are no more than 200 feet in width. The slopes range from 0 to 40 percent but are mostly between 5 and 8 percent. This association occupies one small tract in the northwestern part of the county and makes up about 4 percent of the total acreage of the county.

The Conasauga soils, which are moderately well drained to somewhat poorly drained, are on the flat, broad uplands. They have a light yellowish-brown to grayish-brown surface layer that is underlain by extremely firm, yellowish-brown silty clay. They make up about 40 percent of the association. The Montevallo soils, which make up about 35 percent of the association, are on short, irregularly shaped knolls and steep hills. Their pale-brown to brown shaly silt loam surface layer is underlain by 5 to 15 inches of yellowish-brown shaly silty clay loam.

The minor soils in this association are of the Jefferson, Klinesville, Pope, Philo, Stendal, Atkins, and Purdy series. The Jefferson soils are on foot slopes adjacent to low mountains. The Klinesville soils, which have a yellowish-red shaly subsoil, are intermingled with Montevallo soils on shale ridges. The well drained Pope soils, the moderately well drained Philo soils, the somewhat poorly drained Stendal soils, and the poorly drained Atkins soils are on flood plains. The poorly drained Purdy soils are in some draws and depressions.

Most of the soils in this association are very strongly acid; a few are mildly alkaline. Fertility is low, and the available moisture capacity is low.

About 70 percent of the association is wooded; 15 percent, mostly along small drains, is pastured; and the rest is cultivated. The wooded areas are small- to medium-sized tracts that are owned by individuals or by pulpwood companies. Some previously cultivated areas have reforested to loblolly pine and Virginia pine. The rest of the association is in mixed stands of hardwoods and pine.

The small farms are owned by part-time farmers. The principal crops are corn and hay for livestock. Vegetables are grown on most farms, chiefly for home consumption, but small amounts go to the retail market. The soils are mostly in capability classes III and IV. They are poorly suited to cultivated crops but are suited to a medium range of pasture grasses and legumes. Pastures produce moderate yields if highly fertilized and otherwise properly managed. Pine is well suited, but the rate of growth is moderate. Many of the draws are good sites for ponds.

3. Gilpin-Dekalb-Bodine-Steekee association

Steep, moderately deep soils on mountains

This is an area of low mountains that rise abruptly from 800 feet to 1,600 feet in elevation. The mountains

extend in a north-south direction and are in the western part of the county. Their tops are narrow and are reasonably straight. The long steep slopes are stony and are cut by narrow, shallow draws that are parallel to the direction of the slope and perpendicular to the main streams. There are many outcrops of rock. This association makes up about 9 percent of the total acreage of the county.

The Gilpin and Dekalb soils occur on the mountain tops and on the very steep upper part of slopes. They occupy about 32 percent of the association. They have a light yellowish-brown to grayish-brown, very friable, stony surface layer that is underlain by yellowish-brown to strong-brown silty clay loam or stony sandy clay loam. The Bodine soils are on the lower part of mountain slopes and on all of Baugh Mountain. They make up about 22 percent of the association. They are brown and are stony and very cherty throughout. The Steekee soils occur in narrow bands on the east side of both Horn and Chestnut Mountains. They are stony throughout the profile. Their surface layer of reddish-brown fine sandy loam is underlain by dark reddish-brown sandy clay loam.

The Allen, Jefferson, Locust, and Sequatchie soils are the minor soils in this association. The Allen and Jefferson soils are on foot slopes and side slopes. The Locust soils, which are moderately well drained and have a fragipan, are on fans adjacent to the mountains. The Sequatchie soils have a brown loam surface layer that is underlain by strong-brown to yellowish-red gravelly clay loam or sandy clay loam.

All of the acreage is forested with hardwoods and some scattered Virginia pine, shortleaf pine, and loblolly pine.

Except for the soils in a few hollows, the soils in this association are in capability class VII and are not suited to agriculture. They are low in natural fertility and are stony and steep. Erosion is a serious problem if the soils are cultivated. The growth of trees is average. Except for hunting, camping, and hiking, this association is too steep for recreational development. It is used mainly as a wildlife refuge.

4. Lehew-Ramsey-Montevallo-Klinesville association

Rolling and hilly soils of the uplands; underlain by acid sandstone or shale

This is a highly dissected area that consists of many irregularly shaped hills, narrow short hilltops, and many draws and intermittent streams. The level and gently sloping areas along the draws are less than 50 feet wide. This association covers about 7 percent of the county. It consists of two narrow tracts that cross the county in the north-south direction. One tract extends from west of Plainville to west of Calhoun. The other begins east of Sugar Valley and ends north of Resaca. The elevation varies only about 200 feet and ranges from 700 to 900 feet.

The Lehew, Ramsey, and Dekalb soils make up 43 percent of this association. The Lehew and Ramsey soils are on the steepest and most irregularly shaped hills. The Lehew soils have a gravelly surface layer that is underlain by reddish-brown or yellowish-red gravelly clay loam, whereas the Ramsey soils have a gravelly surface layer that is underlain by yellowish-brown gravelly loam. The Dekalb soils are similar to the Ramsey soils in color but are deeper to bedrock.

The Montevallo and Klinesville soils occur mostly on the outer edges of the association. They make up about 22 percent of the acreage. Their surface layer of shaly silt loam is underlain by 5 to 15 inches of yellowish-brown or yellowish-red shaly silty clay loam.

Also in this association are small areas of the Muse, Jefferson, Leadvale, Rarden, Sequoia, Stendal, Philo, Atkins, Purdy, and Tyler soils.

The Muse and Jefferson soils, which occur on foot slopes and at the head of small draws, are well drained and gently sloping to sloping. In the Jefferson soils, the subsoil is yellowish-brown silty clay loam, whereas in the Muse soils, it is strong-brown to red silty clay loam. The Leadvale soils occur in draws and on fans. They are moderately well drained and have a fragipan. The Rarden and Sequoia soils developed in residuum weathered from shale and are well drained. The Stendal, Philo, and Atkins soils are developing in recent local alluvium, along narrow drainageways and draws. The Stendal soils are somewhat poorly drained; the Philo soils are moderately well drained; and the Atkins soils are poorly drained. The Purdy soils, which are poorly drained, and the Tyler soils, which are somewhat poorly drained, occur in small areas on low terraces.

About 75 percent of the acreage in this association is wooded. Some previously cultivated areas have reverted to loblolly pine and Virginia pine. Other wooded areas are in mixed stands of hardwoods and pine. About 15 percent of the acreage is used for pasture. Small level to sloping areas are used for cultivated crops, and there are a few dairy and beef farms. Most of the acreage is owned by part-time farmers and by pulpwood companies.

About 80 percent of the acreage is in capability classes VI and VII because of the strong slopes, shallow root zone, and low available moisture capacity. This acreage is best suited to loblolly pine or to such pasture plants as tall fescue, common bermudagrass, lespedeza, and orchardgrass. In some areas Coastal bermudagrass will produce moderate yields if management is good. Soils that have slopes of less than 10 percent are moderately well suited to corn, cotton, grain sorghum, and small grain. This association is near major highways, rivers, and urban areas and is suitable for residential or industrial development. Most of the soils are well drained, and the terrain is favorable for such recreational uses as camping and hiking.

5. Montevallo-Klinesville-Rarden association

Shallow, well-drained soils of the rolling and hilly shale ridges

This is an area of low hills dissected by numerous drains and streams. The drains form shallow, narrow hollows. Slopes are short and are mostly steep or very steep. The soils developed in residuum weathered from acid shale. The depth to bedrock is 8 to 38 inches. This association occupies about 33 percent of the county. It occurs in six separate tracts, the largest of which are in the eastern part of the county.

The Montevallo soils make up about 50 percent of the acreage. These soils are well drained and have a shallow root zone. Their surface layer is brown shaly silt

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loam, and their subsoil is yellowish-brown shaly silty clay loam. The Klinesville soils occupy about 15 percent of the acreage. They resemble the Montevallo soils but have a yellowish-red subsoil. The Rarden soils are on the wider hilltops and on slopes of less than 10 percent. They have a brown silt loam surface layer that is underlain by strong-brown and red, extremely firm silty clay.

Also in this association are small areas of Farragut, Sequoia, Colbert, Conasauga, Allen, Jefferson, Leadvale, Muse, Tyler, Purdy, Pope, Philo, Stendal, and Atkins soils.

The Farragut and Sequoia soils occur on slopes of less than 15 percent. They are well drained and have a silty clay subsoil. The Colbert and Conasauga soils occur in some valleys. They have an extremely firm to plastic subsoil and are characterized by a few to many outcrops of limestone. The Allen, Jefferson, Leadvale, and Muse soils developed in local alluvium on foot slopes and in narrow draws. All are well drained except the Leadvale soil, which is moderately well drained. The Tyler and Purdy soils occur on low stream terraces and are somewhat poorly drained and poorly drained, respectively. The Pope, Philo, Stendal, and Atkins soils are developing in recent alluvium along the many drainageways and draws. The Pope soils are well drained; the Philo, moderately well drained; the Stendal, somewhat poorly drained; and the Atkins, poorly drained.

About 80 percent of this association is wooded, mostly with mixed stands of hardwoods and pine. Virginia pine, shortleaf pine, and some loblolly pine are the pine species growing in naturally reforested areas. Loblolly pine is growing in planted areas. About 15 percent of the acreage, mainly along draws and drainageways and on slopes adjacent to these low areas, is used for pasture. Cultivated areas are widely scattered and make up only 5 percent of the association. The principal row crops are cotton, corn, and grain sorghum.

Most of the acreage is owned by pulpwood companies, woodland farmers, and persons who live on the farm but work elsewhere. There are a few dairy and beef cattle farms. The farms in this association vary in size.

Except for small areas on ridgetops and in hollows and valleys, the soils are not suitable for agriculture, because of the shallow root zone and the steep and very steep slopes. Most of the acreage is in capability unit VII. This association is suitable for forest and for such recreational uses as hunting, camping, and hiking. Many of the draws are favorable sites for ponds.

6. Montevallo-Sequoia-Muse association

Shallow to deep soils on shale ridges, on toe slopes, and in draws

This is an area of low hills with flattened tops and short slopes. The draws are slightly crooked and are saucer shaped. There are large areas of local alluvium on the toe slopes and in draws. The change in gradient is gradual, and the slopes average about 10 percent. The elevation generally is about 700 feet; only associations 2 and 8 are at lower elevations. This association is made up of only one tract, which occurs along State Highway No. 53 and extends for a short distance north and south of Calhoun along U.S. Highway No. 41. It occupies about 10 percent of the county.

The Montevallo soils make up about 30 percent of the acreage. They are well drained and have a shallow root zone. Their surface layer of brown shaly silt loam is underlain by brown shaly silty clay loam. The Sequoia soils make up 15 percent of the acreage. They are on low, gently sloping or sloping hills and are well drained. Their surface layer of dark yellowish-brown silt loam is underlain by yellowish-red silty clay. The Klinesville soils, which have a yellowish-red shaly silty clay loam subsoil, are mapped in complexes with the Montevallo soils.

Extending a short distance from the base of some of the upland slopes are smooth benchlike areas on foot slopes. These areas commonly are occupied by the Muse and Leadvale soils. The Muse soils are well drained and have a dark-brown surface layer and a yellowish-red subsoil, whereas the Leadvale soils have a dark yellowish-brown surface layer and a yellow subsoil that contains a fragipan. The Muse and Leadvale soils make up about 13 percent of the acreage.

Also in this association are small areas of Farragut, Rarden, Tupelo, Pope, Philo, Stendal, and Atkins soils.

The Farragut and Rarden soils are well drained and have a dark reddish-brown to brown surface layer and a dark-red to strong-brown subsoil. The Tupelo soils are in depressed areas on the uplands. They have an extremely firm, plastic subsoil. The Pope, Philo, Stendal, and Atkins soils occupy small areas on flood plains. The Pope soils are well drained; the Philo, moderately well drained; the Stendal, somewhat poorly drained; and the Atkins, poorly drained.

Much of the acreage in this association has been cultivated, but slopes of more than 12 percent are now reverting to native vegetation, mostly loblolly pine and Virginia pine. About 50 percent of the acreage is wooded, and 25 percent is used for pasture. Cultivated areas are on the broad, smooth hills and on the well drained to moderately well drained flood plains. A large number of small farms are along highways. There are a few dairy and beef cattle farms.

This association is well suited to dairying and to the raising of beef cattle. Most of the soils are well suited to pasture and hay plants. The Muse and Leadvale soils and some areas of the Farragut and Sequoia soils are moderately well suited to row crops. This association is favorable for residential and industrial development but has little potential for recreational uses.

7. Montevallo association

Steep and very steep, shallow soils on mountains

This is an area of low mountains that rise abruptly from 800 to 1,700 feet in elevation. It is in the extreme eastern part of the county. It is characterized by several mountain peaks, a mass of irregularly shaped mountains and high hills, and long, crooked drains that form deep, narrow hollows. The slopes are long, and the soils are stony. Talking Rock Creek flows through the extreme northeastern part. This association occupies about 5 percent of the total acreage of the county.

The Montevallo soils make up about 65 percent of the association. On the steepest and most rocky slopes, the surface layer is very dark grayish-brown slaty silt loam, and the subsoil is dark yellowish-brown very flaggy silt loam. On the lower, more irregularly shaped mountains and hills, the surface layer is pale-brown to brown shaly silt loam, and the subsoil is 5 to 15 inches of yellowish-brown shaly silty clay loam.

The minor soils in this association are of the Allen, Leadvale, Muse, Pope, Philo, Stendal, Farragut, Rarden, and Sequoia series.

The Allen soils are on foot slopes and side slopes. The Leadvale and Muse soils are on fans and in some draws. The well drained Pope soils, the moderately well drained Philo soils, and the somewhat poorly drained Stendal soils are on flood plains. Small areas of Farragut, Rarden, and Sequoia soils occur on low, very gently sloping to sloping hilltops and on side slopes.

About 3 percent of the acreage is in capability class II and is used for cultivated crops and for pasture. These areas are in draws, on flood plains, on fans, and on gently sloping hilltops. Most of the remaining 97 percent is in capability class VII and is wooded. The native vegetation consists of hardwoods and scattered shortleaf pine, loblolly pine, and white pine.

Except for the scattered small cleared areas, this association is not suited to agriculture. The shallow root zone and the steep and rocky slopes make cultivation with machinery impossible. Trees grow moderately well and are the best use for these soils. This association could be developed for recreational activities, such as hunting, hiking, and camping.

8. Whitwell-Stendal-Philo-Monongahela association

Moderately well drained and somewhat poorly drained soils of the flood plains and low stream terraces

This is an area of broad, gently sloping stream terraces and of nearly level strips of recent alluvium on flood plains. The terraces have been dissected by drainageways and broad, shallow draws. The flood plains are along the larger streams, which occasionally overflow. This association occupies about 12 percent of the county. The largest tract is along the Oostanaula River.

The Whitwell, Stendal, Philo, and Monongahela soils occupy about 65 percent of the association. The Whitwell soils are on low stream terraces and are sometimes overflowed. Their surface layer of dark-brown silt loam is underlain by yellowish-brown silty clay loam. The Stendal and Philo soils, which are mapped as complexes, are on flood plains. They are somewhat poorly drained and moderately well drained. Their surface layer of dark yellowish-brown, brown, or dark-brown silt loam is underlain by mottled and stratified sand and silt. The Monongahela soils are on broad, moderately low stream terraces. They have a dark grayish-brown surface layer and a yellowish-brown clay loam subsoil.

Also in the association are small areas of Sequatchie, Tyler, Purdy, Waynesboro, Nolichucky, Pope, and Atkins soils.

The Sequatchie, Tyler, and Purdy soils are on low stream terraces. The Sequatchie soils are well drained; the Tyler, somewhat poorly drained; and the Purdy, poorly drained. The Waynesboro and Nolichucky soils are on higher terraces and have a yellowish-red subsoil. The well-drained Pope soils and the poorly drained Atkins soils are on flood plains.

More than 75 percent of the acreage in this association is cultivated or pastured. Soils in capability class II make up about 40 percent of the association and are used for pasture and cultivated crops. Soils in capability class I make up about 30 percent and are used for corn and cotton. Soils in capability classes III and IV make up the rest of the acreage and are used mostly for pasture and for hay crops.

The soils in this association vary in crop suitability because of the differences in drainage. The soils on flood plains are suitable for intensive cropping and will produce high yields of row crops and pasture grasses if moderately fertilized. The soils on moderately low and high terraces, though less fertile than those on flood plains, are suited to many kinds of crops. The growth of trees is excellent on all of the acreage.

Floodwater is a hazard on the flood plains. Most floods occur in winter and early in spring, but occasionally a crop is severely damaged or destroyed in summer or in fall. Wet areas generally can be drained. Erosion is a hazard on the uplands if the soils are cultivated.

The soils of this association are poorly suited to residential or industrial development because of both internal and external excess water. Most areas are favorable for recreational development, especially fishing and hunting. Some areas are suitable for flooding to attract ducks for hunting.

Descriptions of Soils

In this section, the soils of Gordon County are described. The soil map at the back of the report gives the location and distribution of all the soils described, and table 6 gives the approximate acreage and proportionate extent of the soils. Technical terms used in describing the soils are defined in the Glossary at the back of the report.

An important part of this section is the series description. The series description includes statements about the general nature of the soils in the series, as well as about the relationship of these soils to soils in other series. It also contains statements about the relief, drainage, underlying material, natural vegetation, and use of the soils. The first soil described in each series is the one considered most nearly typical. A description of each mapping unit in the series follows the series description.

Allen Series

The Allen series consists of well-drained soils on toe slopes and fans in the extreme eastern and western parts of the county. These soils developed in old local alluvium washed from soils underlain by acid sandstone and shale and, to a minor extent, by slate. The surface layer is yellowish-brown, very friable fine sandy loam. It is underlain by yellowish-red sandy clay loam. The slopes range from 2 to 60 percent. Permeability is moderate in the subsoil. The reaction is very strongly acid.

TABLE 6.--APPROXIMATE ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Soil	Acres	Percent
Allen fine sandy loam, 15 to 25 percent slopes	2,175	0.9
Allen fine sandy loam, 2 to 6 percent slopes, eroded	320	.1
Allen fine sandy loam, 6 to 10 percent slopes, eroded	470	.2
Allen fine sandy loam, 10 to 15 percent slopes	430	.2
Allen fine sandy loam, 10 to 15 percent slopes, eroded	205	.1
Allen fine sandy clay loam, 6 to 10 percent slopes, severely eroded	230	.1
Allen fine sandy clay loam, 15 to 25 percent slopes, severely eroded	305	.1
Allen stony fine sandy loam, 25 to 60 percent slopes	3,655	1.6
Atkins silt loam	1,590	.7
Bodine very stony silt loam, 25 to 60 percent slopes	4,440	1.9
Bodine very stony silt loam, 15 to 25 percent slopes	230	.1
Captina silt loam, 0 to 2 percent slopes	275	.1
Christian fine sandy loam, 2 to 6 percent slopes	1,640	.7
Christian fine sandy loam, 6 to 10 percent slopes	805	.3
Christian fine sandy loam, 10 to 15 percent slopes	210	.1
Christian fine sandy loam, 15 to 25 percent slopes	200	.1
Christian fine sandy clay loam, 2 to 6 percent slopes, severely eroded	505	.2
Christian fine sandy clay loam, 6 to 10 percent slopes, severely eroded	3,740	1.6
Christian fine sandy clay loam, 10 to 15 percent slopes, severely eroded	2,585	1.1
Christian fine sandy clay loam, 15 to 25 percent slopes, severely eroded	470	.2
Clarksville cherty silt loam, 2 to 6 percent slopes	700	.3
Clarksville cherty silt loam, 6 to 10 percent slopes, eroded	1,135	.5
Clarksville cherty silt loam, 10 to 15 percent slopes	1,960	.9
Clarksville cherty silt loam, 15 to 25 percent slopes	1,985	.9
Clarksville cherty silt loam, 15 to 25 percent slopes, eroded	3,395	1.5
Clarksville cherty silty clay loam, 10 to 15 percent slopes, severely eroded	70	(1/)
Colbert very rocky silt loam, 15 to 25 percent slopes	155	.1
Conasauga silt loam, 2 to 6 percent slopes	1,835	.8
Conasauga silt loam, 0 to 2 percent slopes	930	.4
Conasauga silt loam, 2 to 6 percent slopes, eroded	1,495	.6
Conasauga shaly complex, 2 to 6 percent slopes	435	.2
Conasauga shaly complex, 2 to 6 percent slopes eroded	225	.1
Conasauga shaly complex, 6 to 10 percent slopes, eroded	585	.3
Conasauga shaly complex, 6 to 10 percent slopes, severely eroded	215	.1
Conasauga shaly complex, 10 to 15 percent slopes	335	.1
Cumberland loam, 2 to 6 percent slopes	305	.1
Cumberland loam, 6 to 10 percent slopes, eroded	75	(1/)
Cumberland silty clay loam, 2 to 6 percent slopes, severely eroded	210	.1
Cumberland silty clay loam, 6 to 10 percent slopes, severely eroded	180	.1
Dewey silt loam, 6 to 10 percent slopes, eroded	90	(1/)
Dewey silt loam, 2 to 6 percent slopes, eroded	110	(1/)
Dewey silty clay loam, 6 to 10 percent slopes, severely eroded	555	.2
Dewey silty clay loam, 10 to 15 percent slopes, severely eroded	480	.2
Dewey silty clay loam, 15 to 25 percent slopes, severely eroded	930	.4
Ennis silt loam, local alluvium	235	.1
Etowah loam, 0 to 2 percent slopes	80	(1/)
Etowah loam, 2 to 6 percent slopes	1,075	.5
Etowah loam, 6 to 10 percent slopes	100	(1/)
Farragut silt loam, 2 to 6 percent slopes, eroded	570	.2
Farragut silty clay loam, 2 to 6 percent slopes, severely eroded	240	.1
Farragut silty clay loam, 6 to 10 percent slopes, severely eroded	525	.2
Farragut silty clay loam, 10 to 15 percent slopes, severely eroded	120	(1/)
Fullerton cherty silt loam, 15 to 25 percent slopes	3,670	1.6
Fullerton cherty silt loam, 2 to 6 percent slopes	350	.2
Fullerton cherty silt loam, 6 to 10 percent slopes	1,065	.5
Fullerton cherty silt loam, 10 to 15 percent slopes	1,420	.6
Fullerton cherty silt loam, 25 to 60 percent slopes	1,840	.8
Fullerton cherty silty clay loam, 6 to 10 percent slopes, severely eroded	250	.1
Fullerton cherty silty clay loam, 10 to 15 percent slopes, severely eroded	470	.2
Fullerton cherty silty clay loam, 15 to 25 percent slopes, severely eroded	100	(1/)
Gilpin-Dekalb stony complex, 25 to 60 percent slopes	6,510	2.8

See footnote at end of table.

TABLE 6.--APPROXIMATE ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS--Continued

Soil	Acres	Percent
Gullied land	265	.1
Guthrie silt loam, clay subsoil variant	915	.4
Hartsells fine sandy loam, 2 to 6 percent slopes	3,320	1.4
Hartsells fine sandy loam, 6 to 10 percent slopes	2,840	1.2
Huntington silt loam, acid variant, local alluvium	550	.2
Jefferson gravelly fine sandy loam, 6 to 10 percent slopes	830	.4
Jefferson gravelly fine sandy loam, 10 to 15 percent slopes	205	.1
Jefferson gravelly fine sandy loam, 15 to 25 percent slopes	365	.2
Klinesville shaly silt loam, 25 to 60 percent slopes	7,135	3.1
Klinesville shaly silt loam, 10 to 15 percent slopes	340	.1
Klinesville shaly silt loam, 15 to 25 percent slopes	5,890	2.6
Landisburg cherty silt loam, 0 to 2 percent slopes	1,460	.6
Landisburg cherty silt loam, 2 to 6 percent slopes	2,720	1.2
Landisburg cherty silt loam, 6 to 10 percent slopes	355	.2
Leadvale silt loam, 0 to 2 percent slopes	1,370	.6
Leadvale silt loam, 2 to 6 percent slopes	1,145	.5
Lehew-Dekalb gravelly fine sandy loams, 10 to 15 percent slopes	285	.1
Lehew-Dekalb gravelly fine sandy loams, 2 to 6 percent slopes	135	.1
Lehew-Dekalb gravelly fine sandy loams, 6 to 10 percent slopes	350	.2
Lehew-Dekalb gravelly fine sandy clay loams, 10 to 15 percent slopes, severely eroded	155	.1
Lehew-Ramsey gravelly fine sandy loams, 15 to 25 percent slopes	1,995	.9
Lehew-Ramsey gravelly fine sandy loams, 25 to 60 percent slopes	1,120	.5
Lehew-Ramsey gravelly fine sandy clay loams, 15 to 25 percent slopes, severely eroded	2,885	1.3
Local alluvial land, moderately wet	305	.1
Locust gravelly fine sandy loam, 2 to 6 percent slopes	1,750	.8
Melvin silt loam	660	.3
Monongahela fine sandy loam, 2 to 6 percent slopes	3,725	1.6
Monongahela fine sandy loam, 6 to 10 percent slopes	2,145	.9
Monongahela gravelly silt loam, 2 to 6 percent slopes	485	.2
Montevallo shaly silt loam, 2 to 6 percent slopes	1,660	.7
Montevallo shaly silt loam, 6 to 10 percent slopes	3,005	1.3
Montevallo-Klinesville shaly silt loams, 15 to 25 percent slopes	12,295	5.4
Montevallo-Klinesville shaly silt loams, 10 to 15 percent slopes	7,140	3.1
Montevallo-Klinesville shaly silt loams, 25 to 60 percent slopes	18,235	8.0
Montevallo-Klinesville shaly silt loams, 6 to 10 percent slopes, severely eroded	665	.3
Montevallo-Klinesville shaly silt loams, 10 to 15 percent slopes, severely eroded	500	.2
Montevallo-Klinesville shaly silt loams, 15 to 25 percent slopes, severely eroded	13,705	6.0
Montevallo slaty silt loam, 60 to 85 percent slopes	870	.4
Montevallo slaty silt loam, 25 to 60 percent slopes	2,905	1.3
Muse silt loam, 2 to 6 percent slopes, eroded	5,855	2.5
Muse silt loam, 2 to 6 percent slopes	2,070	.9
Muse silt loam, 6 to 10 percent slopes, eroded	2,705	1.2
Nolichucky fine sandy loam, 2 to 6 percent slopes	400	.2
Nolichucky fine sandy loam, 6 to 10 percent slopes	110	(1/)
Nolichucky fine sandy loam, 10 to 15 percent slopes, eroded	280	.1
Pope fine sandy loam	3,360	1.5
Pope shaly silt loam, local alluvium	145	.1
Purdy silt loam	1,510	.7
Rarden silt loam, 2 to 6 percent slopes, eroded	1,370	.6
Rarden silt loam, 2 to 6 percent slopes	200	.1
Rarden silt loam, 6 to 10 percent slopes, eroded	1,080	.5
Rarden silt loam, 10 to 15 percent slopes eroded	320	.1
Rarden shaly silty clay loam, shallow, 6 to 10 percent slopes, severely eroded	580	.3
Rarden shaly silty clay loam, shallow, 10 to 15 percent slopes, severely eroded	340	.1
Rarden shaly silty clay loam, shallow, 15 to 25 percent slopes severely eroded	480	.2
Robertsville silt loam, clay subsoil variant	200	.1
Sandy and gravelly land	3,215	1.4
Sequatchie loam, 0 to 2 percent slopes	1,340	.6
Sequatchie loam, 2 to 6 percent slopes	840	.4
Sequatchie loam, 2 to 6 percent slopes, eroded	580	.3
Sequoia silt loam, 2 to 6 percent slopes, eroded	1,165	.5

See footnote at end of table.

TABLE 6.--APPROXIMATE ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS--Continued

Soil	Acres	Percent
Sequoia silt loam, 6 to 10 percent slopes, eroded	395	.2
Sequoia silty clay loam, 2 to 6 percent slopes, severely eroded	350	.2
Sequoia silty clay loam, 6 to 10 percent slopes, severely eroded	505	.2
Sequoia silty clay loam, 10 to 15 percent slopes, severely eroded	1,035	.4
Steekee stony fine sandy loam, 25 to 60 percent slopes	4 620	2.0
Stendal silt loam	865	.4
Stendal-Philo silt loams	7,290	3.2
Taft silt loam, 0 to 2 percent slopes	250	.1
Tupelo silt loam, 0 to 2 percent slopes	2,010	.9
Tupelo silt loam, 2 to 6 percent slopes, eroded	360	.2
Tyler fine sandy loam, 2 to 6 percent slopes	1,260	.5
Tyler fine sandy loam, 0 to 2 percent slopes	525	.2
Waynesboro fine sandy loam, 2 to 6 percent slopes, eroded	670	.3
Waynesboro fine sandy loam, 6 to 10 percent slopes, eroded	125	(1/)
Waynesboro fine sandy loam, 10 to 15 percent slopes, eroded	80	(1/)
Waynesboro fine sandy loam, 15 to 25 percent slopes, eroded	130	.1
Waynesboro fine sandy clay loam, 6 to 10 percent slopes, severely eroded	925	.4
Waynesboro fine sandy clay loam, 10 to 15 percent slopes, severely eroded	340	.1
Waynesboro fine sandy clay loam, 15 to 25 percent slopes, severely eroded	1,845	.8
Whitwell silt loam, 0 to 2 percent slopes	3,525	1.5
Whitwell silt loam, 2 to 6 percent slopes	390	.2
Whitwell silt loam, moderately wet, 0 to 2 percent slopes	4,435	1.9
Whitwell silt loam, moderately wet, 2 to 6 percent slopes	400	.2
Wolftever silt loam, concretionary variant, 2 to 6 percent slopes	265	.1
Wolftever silt loam, concretionary variant, 0 to 2 percent slopes	210	.1
Total	229,120	100.0

1/ Less than 0.05 percent.

The Allen soils are similar to the Jefferson soils and are near the Gilpin, Dekalb, and Steekee soils. They have a redder subsoil than the Jefferson soils; are thicker than the Gilpin and Dekalb soils; and are thicker and have a grayer and less stony surface layer than the Steekee soils.

The native vegetation consisted of oak, hickory, yellow-poplar, dogwood, gum, shortleaf pine, and loblolly pine. About 75 percent of the acreage is wooded. The rest is used for pasture and cultivated crops.

Allen fine sandy loam, 15 to 25 percent slopes (AaE).—This soil developed in old local alluvium on mountain slopes, toe slopes, and foothills. The major horizons are—

0 to 16 inches, yellowish-brown, very friable fine sandy loam.
16 to 28 inches, yellowish-red, firm sandy clay loam; weak, fine, subangular blocky structure.
28 to 50 inches +, dark-red, firm sandy clay loam; moderate, fine, subangular blocky structure.

The effective root zone is 30 to 80 inches thick over weathered shale or cherty limestone. The surface layer ranges from grayish brown to light yellowish brown in color. The subsoil ranges from dark red to yellowish red in color and from sandy clay loam to clay loam in texture. Some profiles have a few small, black concretions in all layers, and most contain sandstone gravel and a few cobblestones. Included in the areas mapped are small areas in which the surface layer is loam or gravelly fine sandy loam.

This soil has moderate infiltration and rapid runoff. It is moderate in natural fertility and in organic-matter content. The available moisture capacity is adequate for all crops. All locally grown pasture grasses and legumes are suitable, but good management is needed if this soil is used for pasture. Cultivated crops are not suitable, because of the steep slopes and rapid runoff. Pine trees are well suited, and good yields can be expected. *Capability unit VIe-1; woodland suitability group 1.*

Allen fine sandy loam, 2 to 6 percent slopes, eroded (AaB2).—This soil developed in old local alluvium, on toe slopes and fans adjacent to mountains and high hills. Erosion has removed most of the original surface layer. The present surface layer is yellowish-brown fine sandy loam and is 5 to 7 inches thick. It is a mixture of the original surface layer and the upper part of the former subsoil. The subsoil is yellowish-red to dark-red sandy clay loam. The depth to weathered shale and sandstone is 60 to 80 inches. Included in the areas mapped are a few small areas in which the surface layer is gravelly fine sandy loam. Also included are some soils that have a yellowish-brown subsoil. Scattered shallow gullies have formed in most areas.

Infiltration is moderate, surface runoff is medium, and the available moisture capacity is high. Natural fertility is moderate, and the organic-matter content is moderate. The root zone is deep, and good tilth is easily maintained. This soil is well suited to all locally grown crops and pasture grasses, but there is a slight to moderate erosion hazard if the soil is cultivated. *Capability unit IIe-3; woodland suitability group 1.*

Allen fine sandy loam, 6 to 10 percent slopes, eroded (AaC2).—This soil developed in old local alluvium, on mountain toe slopes in the extreme eastern and western parts of the county. The surface layer is yellowish-brown fine sandy loam and is 5 to 7 inches thick. In most places it is a mixture of the original surface layer and the upper part of the original subsoil. It is underlain by yellowish-red to dark-red sandy clay loam. The depth to limestone or shale is 50 to 80 inches. Included in the areas mapped are a few areas in which the surface layer is gravelly fine sandy loam and the subsoil is 30 to 40 percent gravel, by volume. There are scattered shallow gullies in most areas.

This soil has moderate infiltration and medium surface runoff. It has a deep root zone and is easily kept in good tilth. The available moisture capacity is adequate for all crops. Natural fertility is moderate, and the organic-matter content is moderate. Growing conditions are favorable for all locally grown crops and pasture grasses. There is a moderate to severe erosion hazard because of the strong slopes and previous erosion. *Capability unit IIIe–3; woodland suitability group 1.*

Allen fine sandy loam, 10 to 15 percent slopes (AaD).—This soil developed in old local alluvium, on toe slopes and foothills adjacent to mountains. The surface layer is grayish-brown to light yellowish-brown fine sandy loam and is 8 to 16 inches thick. In a few cultivated and formerly cultivated areas, the surface layer is yellowish brown. The subsoil is firm, dark-red to yellowish-red sandy clay loam. The depth to shale or limestone bedrock is 50 to 70 inches. Included in the areas mapped are a few small areas that have a yellowish-brown subsoil. Also included are small areas that have a surface layer of gravelly fine sandy loam that is 15 to 25 percent gravel, by volume. Gravel and cobblestones make up about 30 percent of the subsoil in these areas.

Infiltration is moderate, surface runoff is medium, and the available moisture capacity is high. Natural fertility is moderate, and the organic-matter content is moderate. If this soil is cultivated, there is a severe to very severe erosion hazard. Growing conditions are favorable for all locally grown crops, pasture grasses, and legumes, but good management is needed to control erosion. *Capability unit IVe–1; woodland suitability group 1.*

Allen fine sandy loam, 10 to 15 percent slopes, eroded (AaD2).—This soil developed in old alluvium on foothills and toe slopes. The surface layer of yellowish-brown fine sandy loam consists of a mixture of original surface soil and the upper part of the former subsoil. The subsoil is yellowish-red to dark-red sandy clay loam. There are a few cobblestones and a little gravel on the surface and throughout the soil material. Included in the areas mapped are some severely eroded soils from which most of the original surface layer has been removed by erosion. There are a few rills and galled spots in these areas. In a few small areas the surface layer is gravelly fine sandy loam or, in galled spots, fine sandy clay loam.

This soil has moderate infiltration, medium to rapid runoff, and moderate available moisture capacity. It is moderate in natural fertility and moderate in organic-matter content. Good tilth is easily maintained. All locally grown crops are suitable. The crops most commonly grown are cotton, corn, annual lespedeza; and permanent pasture grasses. Good management is needed if this soil is used for row crops or pasture. The hazard of erosion is severe to very severe because of the strong slopes and previous erosion. *Capability unit IVe–1; woodland suitability group 1.*

Allen fine sandy clay loam, 6 to 10 percent slopes, severely eroded (AbC3).—This soil developed in old local alluvium on toe slopes and fans adjacent to mountains. The depth to shale or limestone is 50 to 65 inches. Most of the original surface layer has been removed by accelerated erosion. The present surface layer of strong-brown to yellowish-red fine sandy clay loam consists mostly of subsoil material. The subsoil is dark-red to yellowish-red sandy clay loam. A few shallow gullies and some scattered deep gullies have formed. In most areas there are a few spots in which the surface layer is fine sandy loam or gravelly fine sandy clay loam.

This soil has moderate infiltration, medium runoff, and moderate available moisture capacity. Tilth is fair, but fair tilth is difficult to maintain because of the large amount of clay in the surface layer. Small cracks develop in the more severely eroded spots during dry periods. This soil is easily puddled if worked or pastured when wet.

The total acreage is small, and most of it is cultivated. Corn, cotton, small grain, and alfalfa are the principal crops. This soil responds well to fertilization and is suited to a medium range of crops. In cultivated areas, erosion is a very severe hazard because of the strong slopes and previous erosion. *Capability unit IVe–1; woodland suitability group 2.*

Allen fine sandy clay loam, 15 to 25 percent slopes, severely eroded (AbE3).—This soil developed in old local alluvium on mountain toe slopes. Most of the original surface layer has been removed by accelerated erosion. The present surface layer of yellowish-red fine sandy clay loam consists largely of subsoil material. The subsoil is yellowish-red to red fine sandy clay loam to clay loam. In most places gravel and cobblestones make up from 3 to 5 percent of the soil material, by volume. Small black concretions occur throughout some profiles. Numerous shallow gullies and a few scattered gullies that are from 2 to 4 feet deep have formed in most areas.

This soil is firm to friable and is easily puddled if plowed or pastured when wet. It has moderate available moisture capacity but does not retain enough moisture to meet plant requirements during dry periods. It has a deep root zone and was once used for cultivated crops, but at the present time it is not suited to cultivation because of previous erosion. A few areas are used for pasture, but most of the acreage has reverted to forest. Infiltration is moderately slow, runoff is rapid, natural fertility is low, and the organic-matter content is low.

This soil is well suited to such perennial vegetation as sericea lespedeza, permanent pasture, or trees. Good management is needed if it is used for pasture. The hazard of erosion is very severe because of the moderately steep slopes and previous erosion. *Capability unit VIe–1; woodland suitability group 2.*

Allen stony fine sandy loam, 25 to 60 percent slopes (AyF).—This soil is on toe slopes and mountain side slopes. The surface layer is grayish-brown stony fine sandy loam that is about 35 percent sandstone stones and gravel, by volume. The subsoil is red or yellowish-red stony sandy clay loam that is about 45 percent sandstone stones, cobblestones, and gravel. The depth to shale or limestone is 24 to 48 inches.

This soil has moderate infiltration, rapid runoff, and moderate available moisture capacity. It has a deep to moderately deep root zone, and it is moderate in natural fertility and moderate in organic-matter content. It is not suited to cultivation or to pasture, because of stoniness, steep slopes, and a very severe erosion hazard. It is well suited to trees. *Capability unit VIIs–1; woodland suitability group 5.*

Atkins Series

The Atkins series consists of poorly drained alluvial soils on flood plains. The recent alluvium in which these soils are developing washed from soils underlain by shale and sandstone and, to a small extent, by limestone. The surface layer is mottled grayish-brown and light olive-gray silt loam. It is underlain by mottled gray, olive, and yellowish-brown silt loam or fine sandy loam to a depth of 50 inches or more. These soils are moderately permeable throughout the profile. They are low in natural fertility, high in organic-matter content, and very strongly acid.

The Atkins soils are near the Philo, Pope, Purdy, and Tyler soils. They are more poorly drained and grayer than the Philo and Pope soils, and they lack the strongly developed horizons of the Purdy and Tyler soils.

The Atkins soils occur along creeks and intermittent streams and on flats throughout the county. They are flooded many times during the year for periods of 1 to 10 days. The original vegetation consisted of water oak, sweetgum, blackgum, willow, beech, poplar, ash, and alder. Most of the acreage is still wooded. Some areas have been cleared and are used for pasture, corn, grain sorghum, or hay.

Atkins silt loam (0 to 2 percent slopes) (Atk).—This soil is developing in recent alluvium. Drainage is poor, and the hazard of flooding is severe. The major horizons are—

0 to 8 inches, mottled grayish-brown and light olive-gray, friable silt loam.
8 to 50 inches +, gray silt loam; common to few, fine, prominent, yellowish-brown mottles; weak, fine, granular structure.

This soil is variable in color and ranges from silt loam to silty clay loam in texture. Mottling begins at the surface or within 5 inches of the surface. Somewhat poorly drained soils make up from 10 to 15 percent of the acreage of some of the areas mapped. In these soils, mottling begins 8 to 12 inches below the surface. Also included in the areas mapped are a few areas in which the surface layer is fine sandy loam. In a few areas sandstone gravel or shale fragments make up 8 to 10 percent of the soil material, by volume.

Infiltration is moderate, runoff is very slow, and the available moisture capacity is moderate. The root zone is shallow because of the high water table. Fertility is low, tilth is fair, and the organic-matter content is high. Because of the wet, cold nature of this soil, the planting date in spring is from 2 to 4 weeks later than the average planting date in the county. The range of suitable crops and grasses is narrow.

Corn, soybeans, lespedeza, and grain sorghum are the most commonly grown cultivated crops. Permanent pasture or trees are well suited. *Capability unit IVw–3; woodland suitability group 8.*

Bodine Series

The Bodine series consists of very stony, excessively drained soils that developed in residuum weathered from cherty limestone. These soils have a grayish-brown surface layer that contains many stone-sized fragments of chert. They have a very pale brown subsoil of very cherty silty clay loam. They are rapidly permeable and are extremely acid. The surface layer has a moderately high content of organic matter. The slopes range from 15 to 60 percent.

These soils are adjacent to the Clarksville, Fullerton, Gilpin, Dekalb, and Allen soils. They are much more cherty than the Clarksville soils and are lighter colored and more cherty than the Fullerton soils. They developed in residuum weathered from cherty limestone, whereas the Gilpin and Dekalb soils developed in residuum weathered from sandstone and shale. They are lighter colored and finer textured than the Allen soils.

The Bodine soils are extensive in the western part of the county. They occur along the middle slopes of Horn and Chestnut Mountains and on most of Baugh Mountain. There are also small areas in the south-central part of the county. The vegetation consists of oak, maple, hickory, and dogwood, and some scattered shortleaf pine and loblolly pine. In some areas there is a heavy undergrowth of blueberries and laurel. These soils are well suited to trees.

Bodine very stony silt loam, 25 to 60 percent slopes (BzF).—This is a light-colored soil of the uplands. The major horizons are—

0 to 15 inches, very dark gray, grayish-brown, and pale-yellow, friable very stony silt loam; 35 to 75 percent chert, by volume.
15 to 24 inches, very pale brown, very cherty, friable silty clay loam; weak, fine, subangular blocky structure; 85 to 90 percent chert, by volume.
24 to 30 inches +, light yellowish-brown, firm cherty to stony light silty clay loam; weak, fine, subangular blocky structure; 95 percent chert, by volume; some stones.

The surface layer ranges from light brownish gray to dark grayish brown. The subsoil ranges from very pale brown to yellowish brown. There are a few boulders in most areas. The surface layer is 35 to 75 percent chert, by volume. The lower part of the subsoil is 95 percent chert. The chert fragments are from 3 to 15 inches in diameter. The depth to cherty limestone bedrock is 1 to 30 feet or more. In some areas the Clarksville, Allen, Gilpin, and Dekalb soils are so closely intermingled with the Bodine soils that small areas of these soils are included in the areas mapped. Outcrops of limestone and soils that have from 6 to 18 inches of stony soil material over limestone bedrock make up about 20 percent of the acreage. Also included in the areas mapped are a few small areas in which the surface layer is cherty silt loam.

Although water infiltrates rapidly, this soil has rapid surface runoff. It is highly erodible because of the steep slopes. It has low available moisture capacity, is low in natural fertility, and is moderately high in organic-matter content. The steep slopes and the high content of chert and stones make it unsuitable for row crops or pasture. It can be used for trees but provides little support for large trees because of the high content of chert and stones. High winds during wet periods cause some trees to fall. *Capability unit VIIs–1; woodland suitability group 5.*

Bodine very stony silt loam, 15 to 25 percent slopes (BzE).—This is a light-colored, excessively drained soil of the uplands. It occurs in the western and south-central parts of the county. The surface layer is grayish-brown very stony silt loam that is 35 to 75 percent chert, by volume. The subsoil is light olive-brown to yellowish-brown very cherty to stony silty clay loam. The lower part is 95 percent chert. The depth to cherty limestone is 5 to 30 feet or more. A few small areas with slopes of 10 to 15 percent are included in the areas mapped. Small areas of Clarksville soils make up less than 15 percent of some of the areas mapped. In some places colluvial material has accumulated on toe slopes.

Surface runoff is medium, infiltration is rapid, the available moisture capacity is low, and natural fertility is low. Although the larger trees have been cut from time to time, this soil has not been cleared. It is not suited to cultivated crops because of stoniness, the high content of chert, and the moderately steep slopes. It is best suited to trees but provides little support for large trees. *Capability unit VIIs-1; woodland suitability group 5.*

Captina Series

The Captina series consists of moderately well drained soils that have a fragipan. These soils developed in old general alluvium washed from soils derived from limestone and cherty limestone and, to a minor extent, from shale. The alluvium is 4 to 8 feet thick over acid, olive-gray shale or limestone. The surface layer is dark grayish-brown silt loam. The subsoil is strong-brown to yellowish-brown silty clay loam and is faintly mottled in the lower part. The fragipan, or compact layer, is at a depth of 20 to 36 inches. The slopes range from 0 to 2 percent. Permeability is moderate in the upper part of the subsoil but slow in the fragipan. The entire profile is very strongly acid.

These soils are among the Etowah, Taft, and Robertsville soils. They have a less red subsoil than the Etowah soils, which lack a fragipan. They are better drained, browner, and less mottled than the Robertsville and Taft soils.

The Captina soils occur on low stream terraces along Oothkalooga Creek, in the southern part of the county. Most of the acreage has been cultivated, but the variety of suitable crops is somewhat limited because of the fragipan. The original vegetation consisted mostly of oak, hickory, beech, elm, dogwood, and ash.

Captina silt loam, 0 to 2 percent slopes (CBA).—This is a moderately well drained soil on low stream terraces. The major horizons are—

0 to 12 inches, dark grayish-brown to dark-brown, friable silt loam.
12 to 28 inches, strong-brown, firm silty clay loam; moderate, fine to medium, subangular blocky structure; few, fine, faint, light yellowish-brown mottles in lower part.
28 to 48 inches, pale-yellow and yellowish-brown, very firm, brittle and compact silt loam; fragipan; weak, fine, platy to subangular blocky structure.

The color of the surface layer ranges from dark grayish brown to olive brown. The content of chert varies from 2 to 15 percent in all layers. In a few areas the color of the subsoil ranges from strong brown to yellowish brown. Mixed colors in the subsoil begin at a depth of 15 to 24 inches. Small black concretions make up from 5 to 20 percent of the subsoil material, by volume. The fragipan is from 8 to 24 inches thick and is weakly to strongly compacted. Included in the areas mapped are a few areas in which the surface layer is cherty silt loam or fine sandy loam.

This soil has slow runoff, moderate infiltration, and low available moisture capacity. It is moderately low in natural fertility and low in organic-matter content. Because of the fragipan, it has a moderately deep to shallow root zone and is somewhat limited in the variety of crops that can be grown successfully. However, it responds well to good management and produces good yields of such crops as corn, cotton, grain sorghum, lespedeza, small grain, and pasture grasses. Good tilth is easily maintained. There is a slight to moderate hazard of excess water because of the fragipan, but in most areas corrective measures are not needed. *Capability unit IIw-2; woodland suitability group 7.*

Christian Series

The Christian series consists of well-drained soils that developed in residuum weathered from interbedded cherty limestone and sandstone. The surface layer is dark yellowish-brown fine sandy loam. The subsoil, below a depth of about 18 inches, is red clay loam that is darker red with depth. The depth to bedrock ranges from 60 to 96 inches. Permeability is moderately rapid, and the reaction is very strongly acid. The slopes range from 2 to 25 percent.

These soils are adjacent to the Fullerton and Clarksville soils. They have a redder subsoil and are less cherty than the Clarksville soils. They are coarser textured than the Fullerton soils, which have a cherty silt loam surface layer. At a depth of more than 30 inches, they are redder than the Fullerton soils.

The Christian soils occur on very gently sloping to steep ridgetops, hillsides, and benches in the southern and central parts of the county. The original vegetation consisted mainly of oak, elm, hickory, dogwood, and beech but included some scattered shortleaf pine and loblolly pine. About 75 percent of the acreage is used for cultivated crops or pasture. The rest is forested with hardwoods and pine.

Christian fine sandy loam, 2 to 6 percent slopes (CDB).—This well-drained soil of the uplands has a reddish subsoil. The major horizons are—

0 to 11 inches, dark yellowish-brown, very friable fine sandy loam; grades to yellowish-red loam in the lower part.
11 to 18 inches, yellowish-red, firm sandy clay loam; weak, fine, subangular blocky structure.
18 to 30 inches, red, firm clay loam; weak, fine, subangular blocky structure.
30 to 75 inches +, dark-red, firm clay loam or sandy clay loam mottled with strong brown; subangular blocky structure.

The surface layer ranges from dark yellowish brown to dark grayish brown. The subsoil is dark red to yellowish red in color, and clay loam, sandy clay loam, or silty clay loam in texture. There are a few rills and thin spots. In most areas the plow layer is still within the original surface layer. Most profiles contain some sandstone gravel and a few red concretions. Included in the areas mapped are a few small areas in which the surface layer is cherty fine sandy loam.

This soil has slow runoff, rapid infiltration, and high available water capacity. Water moves through the subsoil at a moderately rapid rate. Natural fertility is moderately low, and the organic-matter content is low. The root zone is deep, and tilth is good. Because of the slope, there is a slight to moderate erosion hazard. Good yields of all locally grown crops can be expected if management is good. *Capability unit IIe–1; woodland suitability group 1.*

Christian fine sandy loam, 6 to 10 percent slopes (CDC).—This well-drained soil of the uplands developed in residuum weathered from sandstone and cherty limestone. The surface layer is yellowish-brown fine sandy loam and is 6 to 10 inches thick. In some places it contains a few chert fragments. The subsoil is a yellowish-red or red sandy clay loam, clay loam, or silty clay loam. Sandstone gravel and chert occur throughout most profiles. In some areas there are a few rills and thin spots. The depth to bedrock is 60 to 96 inches.

This soil has rapid infiltration and medium runoff. It is moderately low in fertility but responds to fertilization. Permeability is moderately rapid, and the available moisture capacity is high. The hazard of erosion is moderate to severe because of the strong slopes. If management is good, the organic-matter content can be maintained easily and good tilth can be preserved. About 80 percent of the acreage is used for cultivated crops. All locally grown crops are suitable. *Capability unit IIIe–1; woodland suitability group 1.*

Christian fine sandy loam, 10 to 15 percent slopes (CDD).—This well-drained soil of the uplands formed in residuum weathered from sandstone and cherty limestone. The surface layer is yellowish-brown fine sandy loam. The subsoil is red or yellowish-red clay loam or silty clay loam. The depth to bedrock is 50 to 80 inches. In some places there are a few rills and thin spots. Included in the areas mapped are a few small areas in which the surface layer is cherty fine sandy loam.

This soil has moderately rapid infiltration and medium runoff. It has a deep root zone. The available moisture capacity is high, natural fertility is moderately low, and the organic-matter content is moderately low. All locally grown crops, pasture grasses, and legumes are well suited. The hazard of erosion is severe to very severe, however, because of the very strong slopes. *Capability unit IVe–1; woodland suitability group 1.*

Christian fine sandy loam, 15 to 25 percent slopes (CDE).—This soil of the uplands developed in residuum weathered from sandstone and cherty limestone. The surface layer is dark grayish-brown fine sandy loam and is 6 to 8 inches thick. The subsoil is dark-red to yellowish-red sandy clay loam or silty clay loam. Depth to bedrock is 50 to 75 inches. Included in the areas mapped are a few areas in which the surface layer is cherty fine sandy loam.

This soil has moderately rapid infiltration and rapid runoff. Permeability is moderately rapid in the subsoil. The available moisture capacity is moderate, natural fertility is moderately low, and the organic-matter content is moderately low. This soil has never been cleared. It is forested with hardwoods and some scattered pine. It is suited to trees and to all locally grown pasture grasses and legumes. Good management is needed if it is used for pasture. *Capability unit VIe–1; woodland suitability group 1.*

Christian fine sandy clay loam, 2 to 6 percent slopes, severely eroded (CEB3).—This well-drained soil of the uplands formed in residuum weathered from sandstone and cherty limestone. The 3- to 5-inch yellowish-red surface layer consists largely of the upper part of the former subsoil. The subsoil is red or yellowish-red sandy clay loam, clay loam, or silty clay loam. The depth to sandstone and cherty limestone is 55 to 90 inches. In all of the areas mapped, there are galled spots, numerous shallow gullies, and scattered deep gullies. A few less eroded patches that have a grayish-brown fine sandy loam surface layer are included in the areas mapped.

This soil has moderate infiltration, medium runoff, and moderate available moisture capacity. It has a deep root zone but is low in natural fertility and low in organic-matter content. It has been used continuously for row crops. Tilth is poor and is difficult to improve because of the high content of clay in the surface layer. Tillage is possible only within a narrow range of moisture content. Because of the slopes and previous erosion, there is a moderate to severe erosion hazard. *Capability unit IIIe–1; woodland suitability group 2.*

Christian fine sandy clay loam, 6 to 10 percent slopes, severely eroded (CEC3).—There are numerous shallow gullies and galled spots on this well-drained soil of the uplands. Deep gullies have formed in a few areas. The surface layer is yellowish-red, friable fine sandy clay loam. The subsoil is dark-red to yellowish-red, firm sandy clay loam, clay loam, or silty clay loam. The depth to bedrock is 55 to 90 inches. Sandstone gravel and chert make up about 5 percent of most profiles, by volume. A few areas in which the profile is cherty are included in the areas mapped.

This soil has moderate infiltration and medium runoff. If has a deep root zone and moderate available moisture capacity. It can be cultivated occasionally but not regularly. The high content of clay makes tillage possible only within a narrow range of moisture content. Pasture crops, hay crops, and trees grow well. Most locally grown pasture grasses and legumes are suitable. Because of the strong slopes and medium runoff, the hazard of erosion is severe to very severe. *Capability unit IVe–1; woodland suitability group 2.*

Christian fine sandy clay loam, 10 to 15 percent slopes, severely eroded (CED3).—There are numerous gullies and galled spots on this well-drained soil of the uplands. Deep gullies have formed in some areas. The surface layer is yellowish-red fine sandy clay loam and consists largely of subsoil material. The subsoil is red or yellowish-red, firm sandy clay loam, clay loam, or silty clay loam. The depth to bedrock is 50 to 80 inches. Gravel and chert make up 5 percent of most profiles, by volume. This percentage increases in the lower part of the subsoil. A few less eroded spots in which the surface layer is grayish-brown fine sandy loam are included in the areas mapped.

This soil has moderately slow infiltration, rapid runoff, and low available moisture capacity. It is low in natural fertility and low in organic-matter content. It has a deep root zone but, because of poor tilth and very strong slopes, is not suited to cultivated crops. It is suited to a medium range of pasture grasses and legumes and to trees. The

erosion hazard is very severe because of the slopes, previous erosion, and rapid runoff. *Capability unit VIe–1; woodland suitability group 2.*

Christian fine sandy clay loam, 15 to 25 percent slopes, severely eroded (CEE3).—There are numerous shallow gullies and a few scattered deep gullies on this well-drained soil of the uplands. The surface layer is yellowish-red fine sandy clay loam and consists largely of the upper part of the former subsoil. The subsoil is red or yellowish red in color and sandy clay loam, clay loam, or silty clay loam in texture. In some small areas chert occurs throughout the profile. Bedrock is at a depth of 40 to 70 inches.

This soil has moderately slow infiltration, very rapid runoff, and low available moisture capacity. It is low in natural fertility and low in organic-matter content. It has a deep root zone but, because of moderately steep slopes and previous erosion, is not suited to cultivation. It is suited to such perennial vegetation as trees, permanent hay, or pasture plants, but the range of suitable grasses and legumes is narrow. All of this soil is forested, mostly with pine. Good forest management increases yields. *Capability unit VIe–1; woodland suitability group 2.*

Clarksville Series

The Clarksville series consists of well-drained, light-colored soils that developed in residuum weathered from cherty limestone. These soils have much chert on the surface and throughout the profile. They occur on weakly to moderately dissected hills and ridges that extend in a northeast-southwest direction, in the central part of the county. The surface layer is about 15 inches of brown to pale-brown cherty silt loam. The subsoil is yellowish-brown cherty silty clay loam. The depth to bedrock is 10 to 20 feet or more. These soils are extremely acid, low in natural fertility, and low in organic-matter content. They are rapidly permeable because of the large amount of chert in the profile. The slopes range from 2 to 25 percent.

The Clarksville soils are associated with the Bodine, Christian, Dewey, and Fullerton soils. They are less cherty than the Bodine soils and have a slightly browner subsoil. They have a yellowish-brown subsoil, whereas the Christian, Dewey, and Fullerton soils have a yellowish-red to dark-red subsoil and are less cherty.

The Clarksville soils are among the most extensive soils in the county. The native vegetation consisted mainly of oak, maple, hickory, and dogwood but included some scattered shortleaf pine. About 25 percent of the acreage is used for row crops, 30 percent is pastured, 40 percent is forested, and the rest is idle. The water table is low and there are few permanent springs or streams.

Clarksville cherty silt loam, 2 to 6 percent slopes (CHB).—This soil is on ridgetops. The major horizons are—

0 to 6 inches, brown, very friable cherty silt loam.
6 to 15 inches, pale-brown to yellowish-brown, very friable to friable cherty silt loam.
15 to 40 inches, yellowish-brown, firm cherty silty clay loam; weak to moderate, fine, subangular blocky structure; about 25 to 35 percent chert, by volume.
40 to 60 inches +, yellowish-brown, pale-brown, and yellowish-red, friable very cherty silt loam or very cherty silty clay loam; about 70 percent chert, by volume.

The surface layer is more gray in wooded areas and ranges to dark grayish brown in cultivated areas. The chert varies in size and amount in all layers and generally increases in amount with depth. The subsoil is light yellowish-brown or yellowish-brown cherty silty clay loam or silty clay loam. A few areas in which the surface layer is silt loam, fine sandy loam, or cherty fine sandy loam are included in the areas mapped. There are scattered pockets of strong brown or yellowish red in the subsoil.

This soil has moderately rapid infiltration and slow surface runoff. It is rapidly permeable and has moderate to low available moisture capacity. It has only fair tilth because of the chert but can be cultivated throughout a wide range of moisture content. It is low in natural fertility and low in organic-matter content but responds to good management, especially to fertilization. It can be used moderately intensively for most locally grown crops and is well suited to such early truck crops as strawberries, tomatoes, watermelons, and corn. Because of the slopes there is a slight to moderate erosion hazard. *Capability unit IIe–2; woodland suitability group 3.*

Clarksville cherty silt loam, 6 to 10 percent slopes, eroded (CHC2).—This soil is on the uplands, in the chert belt of the county. The surface layer is brown to grayish-brown cherty silt loam and in most places consists of a mixture of the remaining surface layer and the upper part of the former subsoil. The subsoil is yellowish-brown, firm cherty silty clay loam or silty clay loam. Chert makes up about 20 percent of the surface layer, by volume, and from 25 to 35 percent of the subsoil. Widely scattered shallow gullies have formed in most areas. Included in the areas mapped are a few areas in which the surface layer is silt loam or fine sandy loam. There are pockets of strong brown or yellowish red in the subsoil.

This soil has moderately rapid infiltration, medium surface runoff, and low available moisture capacity. It is low in natural fertility and low in organic-matter content. The subsoil is rapidly permeable. The chert interferes with tillage, but tillage can be undertaken throughout a wide range of moisture content. This soil is suited to a medium range of crops and pasture grasses and is well suited to such early truck crops as tomatoes, strawberries, corn, and watermelons. Good management is needed if it is used for crops or pasture, because of the moderate to severe erosion hazard. Extreme care should be taken in locating and constructing ponds. *Capability unit IIIe–2; woodland suitability group 3.*

Clarksville cherty silt loam, 10 to 15 percent slopes (CHD).—This soil is on moderately steep slopes and ridgetops in the central part of the county. The surface layer is grayish-brown, very friable cherty silt loam. The subsoil is yellowish-brown, firm cherty silty clay loam. The chert varies in size and in amount in all layers and increases in amount with depth. In some areas there are a few stones or rock outcrops.

This soil has moderately rapid infiltration and medium runoff. Chert interferes with tillage, but cultivation is possible throughout a wide range of moisture content. Although the root zone is deep, the subsoil is rapidly permeable, and the available moisture capacity is low. Natural fertility is also low. The organic-matter content is moderate.

This soil is suited to a medium range of crops and pasture grasses. It can be used for row crops occasionally, but it is better suited to pasture. Yields of hardwoods are low; pine produces better returns. There is a very severe erosion hazard because of the very strong slopes. Ponds constructed on or with this soil generally do not hold water. *Capability unit IVe–2; woodland suitability group 3.*

Clarksville cherty silt loam, 15 to 25 percent slopes (CHE).—This well-drained soil is in the central part of the county. The surface layer is grayish-brown, very friable cherty silt loam. The subsoil is yellowish-brown to light yellowish-brown, firm cherty silty clay loam. The content of chert increases with depth. In some areas there are a few stones or rock outcrops. Included in the areas mapped are a few small areas with slopes of 25 to 40 percent.

This soil has moderately rapid infiltration and medium surface runoff. The high content of chert increases the rate of infiltration and lessens the erosion hazard. The subsoil is rapidly permeable. Natural fertility is low, the available moisture capacity is low, and the organic-matter content is moderate.

This soil is forested with hardwoods. It is not suited to cultivated crops, because of the moderately steep slopes and a very severe hazard of erosion. It is suited to a medium range of pasture grasses and legumes. If carefully managed, it will produce fair yields of permanent pasture grasses. Yields of hardwoods are low; pine would produce higher yields. *Capability unit VIe–1; woodland suitability group 3.*

Clarksville cherty silt loam, 15 to 25 percent slopes, eroded (CHE2).—This is a well-drained, light-colored soil on ridges. Most of the original surface layer has been removed by erosion, and the present surface layer is a mixture of remnants of the original surface layer and the upper part of the former subsoil. It is brown to grayish-brown cherty silt loam. The subsoil is yellowish-brown to light yellowish-brown, firm cherty silty clay loam. The content of chert increases with depth. The depth to cherty limestone is 10 to 20 feet or more. Shallow gullies are common in most areas, and in some places there are stones and outcrops of rock.

Infiltration is moderately rapid, and water moves rapidly through the subsoil. The available moisture capacity is low, and natural fertility is low. The high content of chert interferes with tillage. About two-thirds of the acreage is forested. The rest is used mostly for pasture. This soil is suited to a medium range of pasture grasses and legumes, and if carefully managed it produces fair yields of permanent pasture grasses. The steep slopes and cherty, open nature of the soil make it unsuitable for row crops. The hazard of erosion is very severe. *Capability unit VIe–1; woodland suitability group 3.*

Clarksville cherty silty clay loam, 10 to 15 percent slopes, severely eroded (CID3).—This is a well-drained soil on ridges in the central part of the county. The surface layer is brown to light yellowish-brown cherty silty clay loam. It consists largely of subsoil material. The subsoil is yellowish-brown or light yellowish-brown, firm cherty silty clay loam. Shallow gullies have formed in most areas, and there are some widely scattered deep gullies. A few areas with slopes of 6 to 10 percent or 15 to 25 percent are included in the areas mapped.

This soil has moderately rapid infiltration, rapid surface runoff, and low available moisture capacity. It is low in natural fertility and low in organic-matter content. The high content of chert interferes with tillage. The hazard of erosion is very severe. This soil is suited to only a narrow range of pasture grasses. It is well suited to pine, and about 75 percent of the acreage is forested with pine. *Capability unit VIe–1; woodland suitability group 4.*

Colbert Series

The Colbert series consists of slowly permeable, very plastic, moderately well drained soils that developed in residuum weathered from limestone and from a small amount of interbedded calcareous shale and limestone. The limestone generally is massive, but in some areas it is flaggy. The depth to bedrock is 10 to 24 inches. The uplands on which these soils occur are characterized by numerous rock outcrops, shallow depressions, and lime sinks. The surface layer of grayish-brown silt loam is underlain by olive-brown, very firm, very plastic clay. The reaction is medium acid in the surface layer and mildly alkaline in the subsoil. Permeability is slow. The slopes range from 15 to 25 percent.

These soils are adjacent to the Conasauga, Tupelo, and Guthrie soils. They have a more plastic and more sticky subsoil than the Conasauga soils. They developed in residuum weathered chiefly from limestone; whereas the Conasauga soils developed in residuum weathered from shale and, to a minor extent, from shale interbedded with limestone. They are better drained and more rocky than the Tupelo and Guthrie soils.

The Colbert soils are scattered throughout the central part of the county. They developed under a forest cover of redcedar, oak, hickory, and gum. A few small areas are idle, but most of the acreage is forested.

Colbert very rocky silt loam, 15 to 25 percent slopes (CME).—This moderately well drained soil has a very plastic, clayey subsoil. The major horizons are—

0 to 4 inches, grayish-brown, friable very rocky silt loam.
4 to 7 inches, yellowish-brown, firm silty clay; moderate, medium, subangular blocky structure.
7 to 15 inches, olive-brown, very firm and very plastic clay; strong, fine, blocky structure.
15 inches +, hard limestone.

Outcrops of limestone cover from 3 to 15 percent of the surface of this soil. The surface layer ranges to olive gray in color. The subsoil is mottled in some areas. Included in the areas mapped are a few small areas in which the surface layer is cherty silt loam.

Farm equipment cannot be used successfully, because of the numerous outcrops of rock. Infiltration is slow, runoff is rapid to very rapid, and the available moisture capacity is very low. This soil is low in fertility, and it has a shallow root zone. It is poorly suited to row crops and pasture grasses. It is well suited to redcedar. *Capability unit VIIs–1; woodland suitability group 10.*

Conasauga Series

The Conasauga series consists of moderately well drained and somewhat poorly drained soils that developed in residuum weathered from acid and calcareous shale and interbedded limestone. In the moderately well

drained areas, the surface layer is light yellowish-brown, very friable silt loam. The subsoil is yellowish-brown, mottled, extremely firm silty clay. The depth to shale ranges from about 1 foot to 5 feet. The subsoil is very strongly acid to mildly alkaline. Permeability is moderate in the surface layer and slow in the subsoil. The slopes range from 0 to 15 percent.

These soils are among the Montevallo, Rarden, Sequoia, and Colbert soils. They have a more clayey subsoil and are less well drained than the Montevallo soils. They are more poorly drained and less red than the Rarden and Sequoia soils. In color they are similar to the Colbert soils, but they have a less plastic subsoil.

The Conasauga soils occur in small areas on flats and on gently rolling hills throughout the county. The largest areas are east of Sugar Valley. The original vegetation consisted mainly of oak, hickory, sweetgum, elm, and dogwood but included some scattered shortleaf pine and loblolly pine. About 10 percent of the acreage is cultivated, 40 percent is used for pasture, and the rest is forested.

Conasauga silt loam, 2 to 6 percent slopes (CRB).—This soil is moderately well drained and has an extremely firm subsoil. The major horizons are—

0 to 6 inches, light yellowish-brown, very friable silt loam; uppermost 2 inches commonly is grayish brown.
6 to 26 inches, yellowish-brown to brownish-yellow, mottled, extremely firm silty clay; moderate, medium to fine, subangular blocky structure.
26 to 40 inches, yellowish-brown, mottled, firm shaly silty clay loam; weak, fine, subangular blocky structure.
40 to 48 inches +, olive and light olive-brown shale; soft and weathered.

The surface layer is light yellowish brown, grayish brown, or light olive brown. The subsoil is silty clay to silty clay loam. It is yellowish brown to light olive brown and is mottled with grayish brown, light yellowish brown, light brownish gray, or pale yellow. In some places there are many small shale fragments throughout the profile. In other places small black concretions make up 5 to 8 percent of the subsoil material, by volume. There are some widely scattered outcrops of limestone. A few small areas in which the surface layer is fine sandy loam or shaly silt loam are included in the areas mapped. Also included are some small scattered areas that have slopes of 6 to 10 percent.

This soil has moderate infiltration and slow runoff. It has a moderately deep root zone, but it has low available moisture capacity. Natural fertility is low, and the response to fertilization is moderate. The organic-matter content is medium. Fair tilth can be maintained if management is good. About 30 percent of the acreage is used for pasture and row crops, but the range of suitable crops is medium because of the extremely firm subsoil. Most pasture grasses and legumes are suitable. Yields are moderate if management is good, but there is a moderate to severe hazard of erosion. *Capability unit IIIe–4; woodland suitability group 9.*

Conasauga silt loam, 0 to 2 percent slopes (CRA).—This is a somewhat poorly drained soil on flats or in large depressions in the western part of the county. Water is on or near the surface much of the time in winter and during rainy periods. The surface layer is light olive-gray or pale-olive silt loam. It is underlain by 14 to 30 inches of olive to light olive-brown silty clay to silty clay loam. Shale or limestone is at a depth of 2 to 5 feet. In a few small areas 4 to 6 inches of very fine sandy loam or shaly silt loam has accumulated on the surface.

The water hazard on this soil is moderate to severe. Surface runoff is very slow because the soil is nearly level. Infiltration is moderate, and the available moisture capacity is low. The surface layer is sticky when wet, and it is hard when dry. Because of the extremely firm silty clay subsoil, this soil is limited both in productivity and in the variety of crops that can be grown. Grain sorghum and lespedeza are the best suited crops, and tall fescue is the best suited pasture grass. *Capability unit IIIw–3; woodland suitability group 9.*

Conasauga silt loam, 2 to 6 percent slopes, eroded (CRB2).—This is a moderately well drained soil on low ridges. It developed in residuum weathered from shale and interbedded limestone. Much of the original surface layer has been removed by erosion, and ordinary tillage reaches through the remaining surface layer and into the upper part of the subsoil. The present surface layer is 4 to 6 inches of light yellowish-brown silt loam. It is browner, contains more clay, and is more sticky than that of the uneroded Conasauga soils. The subsoil is mottled yellowish-brown to light olive-brown silty clay to silty clay loam. Shale or limestone is at a depth of 3 to 5 feet. Shale fragments and concretions make up from 4 to 10 percent of some profiles, by volume. There are shallow gullies and galled spots in most areas, and in places there are some widely scattered outcrops of limestone.

This soil has moderate infiltration, medium surface runoff, and low available moisture capacity. It is low in natural fertility and low in organic-matter content. It has a moderately deep root zone but is somewhat limited in productivity because of the extremely firm subsoil. Only a medium range of locally grown crops is suitable. Pasture grasses and legumes are well suited. The response to good management is fair to poor, and the risk of erosion is moderate to severe. *Capability unit IIIe–4; woodland suitability group 9.*

Conasauga shaly complex, 2 to 6 percent slopes (CSB).—This complex consists of moderately well drained shaly soils that developed in residuum weathered from shale and interbedded limestone. The surface layer is dark grayish-brown to olive-brown shaly silt loam. The subsoil is mottled yellowish-brown to olive-brown silty clay or shaly silty clay. The depth to shale or limestone ranges from 12 to 30 inches but generally is about 18 inches. The reaction is very strongly acid to mildly alkaline. There are outcrops of limestone in some areas. These soils vary greatly in texture and in acidity within short distances, without any uniformity in pattern. Soils that are very strongly acid make up about 80 percent of the acreage.

The major horizons of a very strongly acid soil are—

0 to 4 inches, dark grayish-brown, friable shaly silt loam; 15 percent shale fragments; medium acid.
4 to 19 inches, yellowish-brown, very firm silty clay; red mottles; lower 5 inches is more silty and is 18 to 20 percent shale; very strongly acid.
19 to 36 inches +, light olive-brown, soft, acid shale.

The surface layer ranges to grayish brown in color. The subsoil ranges from silty clay to silty clay loam in texture and is shaly in places. It ranges to olive brown in color, and the mottles range to olive yellow. Soft weathered shale is at a depth of 15 to 30 inches. There are a few

shallow gullies, but in most places the plow layer is within the original surface layer.

The major horizons of a mildly alkaline soil are—

0 to 5 inches, olive-brown, friable shaly silt loam; medium acid.
5 to 14 inches, yellowish-brown, firm shaly silty clay; red and olive-brown mottles; mildly alkaline.
14 to 18 inches +, olive shale and dark-gray limestone; 85 percent mildly alkaline shale.

The surface layer ranges to light yellowish brown in color and in places is as much as 50 percent shale. In some places the subsoil is shaly silty clay loam in texture and ranges to olive yellow in color. Exposures of limestone cover from 1 to 6 percent of the surface. The depth to shale or limestone is 12 to 24 inches.

These soils have moderate infiltration and medium runoff. They have fair tilth and a shallow root zone. They are low in natural fertility but are medium in organic-matter content. Plant roots do not readily penetrate the clayey subsoil. About 20 percent of the acreage is used for pasture. The rest is forested with hardwoods and pine. Only a narrow range of crops is suitable. Grain sorghum and cotton are among the best suited crops. The thin, clayey subsoil somewhat limits the variety of pasture grasses and legumes that can be grown successfully. The erosion hazard is severe. *Capability unit IIIe–6; woodland suitability group 9.*

Conasauga shaly complex, 2 to 6 percent slopes, eroded (CSB2).—These are moderately well drained soils that have a thin, firm to very firm subsoil. They developed on the uplands in residuum weathered from shale or from shale interbedded with limestone. The surface layer is dark grayish-brown, olive-brown, or light yellowish-brown shaly silt loam. It is a mixture of the remaining original surface layer and subsoil material. The subsoil is yellowish-brown, firm to very firm, mottled silty clay, shaly silty clay, or shaly silty clay loam. The reaction ranges from very strongly acid to mildly alkaline. There are some scattered shallow gullies and some outcrops of limestone.

These soils have moderate infiltration and medium surface runoff. They are low in natural fertility and low in available moisture capacity. About 35 percent of the acreage is used for pasture. Most of the remaining acreage is forested. These soils are suited to only a narrow range of row crops. They are best suited to grain sorghum and cotton. Only a limited variety of pasture grasses and legumes can be grown successfully because of the thin clayey subsoil. The hazard of erosion is severe because of the slopes and the slowly permeable subsoil. *Capability unit IIIe–6; woodland suitability group 9.*

Conasauga shaly complex, 6 to 10 percent slopes, eroded (CSC2).—These are moderately well drained soils that have a thin, firm to very firm subsoil. They developed on the uplands in residuum weathered from shale and from shale interbedded with limestone. The surface layer is dark grayish-brown, olive-brown, or light yellowish-brown shaly silt loam. In most areas it consists of a mixture of the remnants of the original surface layer and subsoil material. The subsoil is mottled yellowish-brown, red, or olive-brown shaly silty clay loam, silty clay, or shaly silty clay. Shale or limestone is at a depth of 12 to 20 inches. Soils that are very strongly acid make up about 80 percent of the acreage. Soils that are mildly alkaline make up the remaining 20 percent. There are shallow gullies and some galled spots in most areas, and in a few places there are outcrops of limestone. Included in the areas mapped are a few small areas in which the surface layer is silt loam.

Infiltration is moderate, surface runoff is medium, and the available moisture capacity is low. Natural fertility is low, and the organic-matter content is also low. These soils have very severe limitations for use because of the strong slopes and shallowness to shale and limestone. They can be cultivated only within a narrow range of moisture content. They have been used for cultivated crops but are now mostly forested. Only a few kinds of pasture grasses and legumes are suitable. Pasture yields are low because of the very firm to firm, clayey subsoil. *Capability unit IVe–3; woodland suitability group 9.*

Conasauga shaly complex, 6 to 10 percent slopes, severely eroded (CSC3).—These are moderately well drained soils that developed in residuum weathered from shale or from shale interbedded with limestone. The surface layer is yellowish-brown shaly silt loam and is 3 to 6 inches thick. Most of the original surface layer and an appreciable amount of the upper part of the subsoil have been removed by accelerated erosion. Shallow gullies are common in most areas. The subsoil is firm to very firm, mottled yellowish-brown, red, and olive-brown shaly silty clay and is from 6 to 12 inches thick. The reaction ranges from very strongly acid to mildly alkaline within short distances and without a uniform pattern. Shale and limestone are at a depth of 12 to 18 inches, and there are some scattered outcrops of limestone. Included in the areas mapped are a few areas in which the surface layer is shaly silty clay loam.

Water moves into these soils at a moderate rate, but surface runoff is medium to rapid. The available moisture capacity is low because of the thin solum. These soils have been used for cultivated crops but have reverted to pine. They are low both in natural fertility and in organic-matter content. The erosion hazard is very severe because of the strong slopes, previous erosion, and the thin solum. *Capability unit VIe–3; woodland suitability group 9.*

Conasauga shaly complex, 10 to 15 percent slopes (CSD).—These are moderately well drained soils that have a thin, firm to very firm subsoil. They developed on the uplands in residuum weathered from shale or from shale interbedded with limestone. The surface layer is dark grayish-brown to olive-brown shaly silt loam. There is little evidence of accelerated erosion. The subsoil is mottled yellowish-brown, red, and olive-brown silty clay, shaly silty clay loam, or shaly silty clay. The reaction ranges from very strongly acid to mildly alkaline within short distances. Shale or limestone is at a depth of 12 to 20 inches. There are a few outcrops of limestone. Included in the areas mapped are a few areas in which the surface layer is silt loam.

These soils have moderate infiltration, rapid surface runoff, and low available moisture capacity. They are low in natural fertility but are medium in organic-matter content. Erosion is a very severe hazard because of the thin clayey subsoil and the very strong slopes. Most of the acreage is forested with hardwoods and pine. Trees are well suited, but if management is good, a limited variety of grasses and legumes can be grown. *Capability unit VIe–3; woodland suitability group 9.*

Cumberland Series

The Cumberland series consists of well-drained, reddish soils that developed in old alluvium washed from soils underlain by limestone or shale. The alluvium is 50 to 84 inches thick over shale or limestone. The surface layer is dark reddish-brown loam. Dark-red silty clay occurs at a depth of about 14 inches. Rounded sandstone and quartzite gravel make up from 1 to 4 percent of most profiles, by volume. A very gravelly layer commonly occurs just above the underlying shale and limestone. These soils are very strongly acid and are moderately permeable. They have slopes of 2 to 10 percent and occur on high stream terraces.

The Cumberland soils are adjacent to the Etowah and the Wolftever soils. They have a browner surface layer and a finer textured, darker red subsoil than the Etowah soils. They are better drained than the Wolftever soils, which have a weakly cemented concretionary zone in the lower part of the subsoil. They resemble the Farragut soils, which developed in residuum weathered from shale and limestone.

The Cumberland soils occur along Oothkalooga Creek and in the vicinity of Sugar Valley. The original vegetation consisted mainly of oak, hickory, elm, maple, beech, dogwood, and chestnut but included a few scattered shortleaf pine and loblolly pine. About 90 percent of the acreage is cultivated, and 10 percent is used for pasture.

Cumberland loam, 2 to 6 percent slopes (CUB).—This is a reddish soil that developed in old alluvium washed from areas of limestone. The major horizons are—

0 to 8 inches, dark reddish-brown, friable loam.
8 to 14 inches, dark reddish-brown, firm silty clay loam; weak, subangular blocky structure.
14 to 50 inches +, dark-red, firm to very firm silty clay; subangular blocky structure ranging from weak in the upper part to strong in the lower part.

The surface layer ranges from dark reddish brown to reddish brown in color. In places there are a few rills and thin spots, but in most places the plow layer is still within the original surface layer. The subsoil is dark-red or red silty clay to silty clay loam. Small concretions make up from 3 to 5 percent of the subsoil material, by volume. In places beds of gravel occur above the shale or limestone. The depth to shale or limestone is 4 to 7 feet. Small areas in which the surface layer is silt loam or gravelly fine sandy loam are included in the areas mapped.

This soil responds to good management, especially to fertilization. It has moderate infiltration, slow surface runoff, and high available moisture capacity. Tilth is good, and the root zone is deep. Natural fertility is moderately high, and the organic-matter content is medium. Cotton, corn, and alfalfa are the principal crops, but all locally grown crops are suitable. There is a slight to moderate erosion hazard because of the slopes. *Capability unit IIe–1; woodland suitability group 1.*

Cumberland loam, 6 to 10 percent slopes, eroded (CUC2).—This is a well-drained soil on high stream terraces. It developed in old alluvium that washed from soils derived from limestone. The surface layer is dark reddish-brown loam and consists of a mixture of the remnants of the original surface layer and the upper part of the former subsoil. The subsoil is dark-red silty clay or silty clay loam. Brown and black concretions make up from 3 to 5 percent of the subsoil material, by volume. The depth to shale or limestone is 4 to 6 feet. Shallow gullies and galled spots occur in most areas.

This soil responds to good management, especially to fertilization. It has moderate infiltration, medium runoff, and high available moisture capacity. It has good tilth and a deep root zone. Natural fertility is moderately high, and the organic-matter content is moderate. Cotton is the principal crop, but some corn and alfalfa are grown. All locally grown crops are suitable. The hazard of erosion is moderate to severe because of the strong slopes. *Capability unit IIIe–1; woodland suitability group 1.*

Cumberland silty clay loam, 2 to 6 percent slopes, severely eroded (CVB3).—This is a well-drained soil on high stream terraces. Erosion has removed all or nearly all of the original surface layer of dark reddish-brown loam. The present surface layer consists of red to dark reddish-brown silty clay loam, largely subsoil material. The subsoil is dark-red silty clay to silty clay loam. Brown and black concretions make up from 3 to 5 percent of the subsoil material, by volume. In the lower part of most profiles is a layer that is 50 percent gravel. Shallow gullies and galled spots are common.

This soil has moderately slow infiltration, moderate available moisture capacity, and medium runoff. Natural fertility is moderate, and the organic-matter content is low. Tilth is only fair because of the high clay content of the surface layer. Clods form if the soil is cultivated when moderately dry, and small cracks appear during dry periods. Tillage is possible only within a narrow range of moisture content.

This soil has a small total acreage, most of which is cultivated. It responds to good management, especially to fertilization. It is suited to all locally grown crops and pasture grasses. There is a moderate to severe erosion hazard because of the slopes, previous erosion, and the fine texture of the surface layer. *Capability unit IIIe–1; woodland suitability group 2.*

Cumberland silty clay loam, 6 to 10 percent slopes, severely eroded (CVC3).—This is a well-drained soil on high stream terraces. Accelerated erosion has removed most of the original surface layer, and there are many shallow gullies and galled spots. The 4- to 6-inch surface layer of red to dark reddish-brown silty clay loam consists largely of subsoil material. It is underlain by dark-red silty clay or silty clay loam. Small black and brown concretions make up from 3 to 5 percent of the profile, by volume. A very gravelly layer is in the lower part of most profiles. A few small areas that have slopes of 10 to 15 percent are included in the areas mapped.

This soil has moderately slow infiltration and moderate available moisture capacity. It is moderate in natural fertility and low in organic-matter content. Tilth is fair because of the high content of clay in the surface layer. Tillage is possible only within a narrow range of moisture content. Large amounts of organic matter are needed to improve tilth.

This soil responds to good management, especially to fertilization. It has a small total acreage, most of which is cultivated. It is suited to most locally grown crops and pasture grasses. The erosion hazard is very severe

because of the strong slopes, previous erosion, and the fine texture of the surface layer. *Capability unit IVe–1; woodland suitability group 2.*

Dekalb Series

The Dekalb series consists of well-drained loamy soils that developed in residuum weathered from thick-bedded sandstone. The surface layer is brown or light yellowish-brown stony or gravelly fine sandy loam. The subsoil is yellowish-brown stony or gravelly sandy clay loam. Weathered sandstone is at a depth of 12 to 25 inches. These soils are low in natural fertility and are very strongly acid. The slopes range from 2 to 60 percent.

The Dekalb soils commonly adjoin the Gilpin, Lehew, and Ramsey soils. They have a more sandy subsoil than the Gilpin soils, are less red than the Lehew soils, and are deeper to bedrock than the Ramsey soils.

Most of the acreage is west of State Highway No. 53 and U.S. Highway No. 41. Most areas are wooded, but some of the less sloping areas are cultivated or used for pasture. The native vegetation consisted mainly of hardwoods but included some scattered pine.

In Gordon County the Dekalb soils are mapped in complexes, either with the Gilpin or with the Lehew soils.

Dewey Series

The Dewey series consists of well-drained soils of the uplands. These soils developed on ridgetops and on the upper part of slopes, in residuum weathered from cherty and noncherty dolomitic limestone. The surface layer is strong-brown silt loam. The subsoil is red to dark-red, very firm silty clay and is moderately permeable. Limestone bedrock is at a depth of 10 to 20 feet. The reaction is very strongly acid. The slopes range from 2 to 25 percent.

The Dewey soils are near the Fullerton, Clarksville, and Christian soils. They are redder and much less cherty than the Fullerton and Clarksville soils. They are somewhat similar to Christian soils in color but have a browner, finer textured subsoil.

The Dewey soils are of limited extent in the county and occur chiefly in small areas in the south-central part. They developed under a forest that consisted mainly of oak, hickory, gum, elm, and dogwood but that included some scattered pine. They have been used for cotton and corn, but because of erosion about 50 percent of the acreage has been allowed to revert to trees. The rest is used in about equal proportions for pasture and cultivated crops.

Dewey silt loam, 6 to 10 percent slopes, eroded (DdC2).—This is a well-drained soil of the uplands. It is underlain by limestone. The major horizons are—

0 to 8 inches, strong-brown, very friable silt loam; uppermost 2 inches commonly is dark grayish brown.
8 to 44 inches, red to dark-red, firm to very firm silty clay; weak, fine, subangular blocky structure to moderate, fine, angular blocky structure.
44 to 60 inches +, red, very firm silty clay loam; weak, fine, subangular blocky structure.

In most places the surface layer is a mixture of the remaining original surface layer and the upper part of the former subsoil. There are patches where the plow layer consists wholly of original surface soil and others where it consists entirely of former subsoil material. In places chert fragments make up 5 percent of the surface layer, by volume. After a period of 15 to 25 years, a thin A1 horizon normally develops in formerly cultivated soils that have reverted to trees. The subsoil is clay or silty clay. In some areas there is no chert in the subsoil but in other areas chert makes up 15 percent of the subsoil, by volume. The depth to limestone is 10 to 20 feet. Shallow gullies have formed in a few places. A few acres that have slopes of 10 to 15 percent are included in the areas mapped.

This soil has moderate infiltration, moderate permeability, medium surface runoff, and moderate available moisture capacity. It has a deep root zone and is moderate in natural fertility. The organic-matter content is low. Tilth is fair, but additions of organic matter are needed to maintain fair tilth. This soil responds well to good management, especially to fertilization. It can be used moderately intensively for all crops grown in the county. Most of the acreage is used for row crops or for alfalfa. There is a moderate to severe erosion hazard because of the strong slopes. *Capability unit IIIe–1; woodland suitability group 1.*

Dewey silt loam, 2 to 6 percent slopes, eroded (DdB2).—This is a deep, reddish soil on limestone ridgetops. Most of the original surface layer has been removed by erosion, and the present surface layer is a mixture of the remnants of the original surface layer and the upper part of the former subsoil. It is strong-brown, grayish-brown, or brown silt loam. The subsoil is dark-red to red clay or silty clay. Limestone is at a depth of 10 to 20 feet. In most areas there is no chert in the soil material but in other areas chert occurs throughout the profile. There are a few shallow gullies and galled spots in most areas. Included in the areas mapped are a few small areas in which the plow layer is reddish brown. Also included are some severely eroded spots in which the surface layer is red silty clay loam.

This soil has moderate infiltration, medium runoff, and moderate available moisture capacity. It is suited to a wide range of crops but is used principally for cotton, corn, and alfalfa. Natural fertility is moderate, but high yields can be obtained if management is good. The organic-matter content is low, and additions of organic matter are needed annually. The hazard of erosion is slight to moderate, but erosion can be controlled easily. *Capability unit IIe–1; woodland suitability group 1.*

Dewey silty clay loam, 6 to 10 percent slopes, severely eroded (DeC3).—This is a reddish, sticky soil that developed in residuum weathered from limestone. The surface layer of reddish-brown to yellowish-red silty clay loam consists largely of subsoil material. It is underlain by red to dark-red clay or silty clay. Shallow gullies and galled spots occur in most areas. Limestone bedrock is at a depth of 10 to 20 feet. In some places chert makes up from 5 to 10 percent of the soil material, by volume. A few areas in which the surface layer is silt loam are included in the areas mapped. Also included are a few areas that have a dark reddish-brown surface layer and slopes of 2 to 6 percent. These areas are small and do not affect management or use.

This soil has a deep root zone and fair tilth, but it forms clods on drying because of its high content of clay. Infiltration is moderate, surface runoff is medium, and

the available moisture capacity is moderate. Natural fertility is moderately low, and the organic-matter content is low. Yields of most locally grown crops are good if management is good. Most of the acreage is used for cultivated crops. About 30 percent is used for pasture, and 15 percent is forested. There is a very severe erosion hazard because of the strong slopes and previous erosion. *Capability unit IVe–1; woodland suitability group 2.*

Dewey silty clay loam, 10 to 15 percent slopes, severely eroded (DeD3).—Numerous shallow gullies and a few deep gullies have formed in this very strongly sloping soil. Accelerated erosion has removed most of the original surface layer and some of the subsoil. The present surface layer is reddish-brown to yellowish-red silty clay loam and consists largely of subsoil material. The subsoil is dark-red to red silty clay. In a few areas chert makes up from 5 to 10 percent of the soil material. Some very severely eroded areas in which the surface layer is red silty clay are included in the areas mapped. These areas are small and do not affect use or management.

This soil has rapid runoff, moderately slow infiltration, and moderate to low available moisture capacity. It puddles easily when wet and forms hard clods if tilled when too dry. It is not suited to row crops but is suited to a medium range of pasture grasses and legumes. Most crops are damaged if a drought lasts more than 3 weeks. Most of the acreage is forested with pine; about 35 percent is used for pasture. *Capability unit VIe–1; woodland suitability group 2.*

Dewey silty clay loam, 15 to 25 percent slopes, severely eroded (DeE3).—This soil was used for cultivated crops until accelerated erosion removed most of the original surface layer. The present surface layer is reddish-brown to red silty clay loam and consists mostly of subsoil material. The subsoil is dark-red to red, very firm silty clay or clay. Limestone is at a depth of 6 to 15 feet.

This soil has moderately slow infiltration, rapid runoff, and low available moisture capacity. Tillage is difficult because of the numerous gullies, clayey plow layer, and steep slopes. Good management is needed if this soil is used for pasture. The variety of pasture grasses and legumes that can be grown is limited. Most of the acreage is forested with pine. *Capability unit VIe–1; woodland suitability group 2.*

Ennis Series

The Ennis series consists of well-drained soils that developed in local alluvium at the base of slopes and in depressions throughout the cherty limestone belt in the county. The surface layer is light olive-brown, friable silt loam. The subsoil is light yellowish-brown silty clay loam. The depth to limestone bedrock is 6 to 10 feet. Permeability is moderately rapid in the surface layer and moderate in the subsoil. The slopes range from 0 to 2 percent.

These soils occur with the Landisburg soils. They are better drained and less cherty than the Landisburg soils and lack the distinct fragipan.

About 35 percent of the acreage is used for cultivated crops, 35 percent is used for pasture, and the rest is forested or is idle. The native vegetation consisted mainly of oak, hickory, ash, maple, and sweetgum but included some scattered shortleaf pine and loblolly pine.

Ennis silt loam, local alluvium (0 to 2 percent slopes) (Ens).—This well-drained soil developed in local alluvium at the base of slopes and in depressions. The major horizons are—

0 to 26 inches, light olive-brown, friable silt loam that is dark grayish brown in lower part.
26 to 45 inches, light yellowish-brown, friable silty clay loam; weak, fine, subangular blocky structure.
45 to 50 inches +, mottled pale-olive, gray, and brownish-yellow, friable silty clay loam; weak, fine, subangular blocky structure.

The surface layer ranges from light olive brown to dark grayish brown, and the subsoil ranges from light yellowish brown to yellowish brown. A few, fine, faint mottles occur at a depth of about 20 inches in some profiles. In a few areas there is a weak, discontinuous fragipan at a depth of about 20 to 30 inches, and in some places chert is common throughout the profile. Included in the areas mapped are a few small areas in which the surface layer is fine sandy loam or cherty silt loam.

Infiltration is moderately rapid, runoff is slow, and the available moisture capacity is high. Natural fertility is moderate, and the organic-matter content is also moderate. Tilth is good and can be easily maintained. This soil is suited to a wide range of locally grown crops. It can be used intensively and produces high yields if fertilization is adequate. *Capability unit I–3; woodland suitability group 6.*

Etowah Series

The Etowah series consists of well-drained soils that developed in old alluvium washed chiefly from soils underlain by limestone. The surface layer is dark-brown loam. Red, firm silty clay loam occurs at a depth of about 15 inches. Shale is at a depth of 6 to 10 feet. These soils are moderately permeable and very strongly acid. The slopes range from 0 to 10 percent but are mostly between 2 and 6 percent.

The Etowah soils generally are between the Cumberland soils on high stream terraces and the Captina and Taft soils on low stream terraces. They are less red than the Cumberland soils, which have a dark reddish-brown surface layer and a dark-red subsoil. They are better drained than the Captina and Taft soils, which have a fragipan at a depth of 18 to 36 inches.

The Etowah soils are along U.S. Highway No. 41, in the south-central part of the county, and in the vicinity of Sugar Valley in the northwestern part. Most of the acreage is used for cotton, corn, small grain, and pasture. The original vegetation consisted of oak, red maple, ash, hickory, dogwood, sweetgum, poplar, and some scattered shortleaf pine and loblolly pine. About 75 percent of the acreage is used for cultivated crops, 20 percent is used for pasture, and the rest has reverted to pine.

Etowah loam, 0 to 2 percent slopes (EdA).—This is a well-drained soil on stream terraces. The total acreage is small. The major horizons are—

0 to 8 inches, dark-brown, very friable loam.
8 to 15 inches, yellowish-red and dark-brown, friable silt loam.
15 to 32 inches, red, firm silty clay loam; moderate, fine, subangular blocky structure.
32 to 48 inches, yellowish-red, firm silty clay; moderate, fine, subangular blocky structure.
48 to 52 inches +, strong-brown, red, and olive-yellow, firm silty clay; weak, fine, subangular blocky structure.

The surface layer ranges from brown to dark brown in color and from 7 to 11 inches in thickness. Shale bedrock is at a depth of 6 to 10 feet. There are a few rounded chert fragments and a little sandstone gravel in some profiles. A few small areas in which the surface layer is silt loam were included in the areas mapped.

Surface runoff is very slow, infiltration is moderately rapid, and the available moisture capacity is high. The subsoil is moderately permeable. This soil is suited to all locally grown crops but is used mostly for cotton. It has a deep root zone and good tilth. It is moderate in natural fertility and moderate in organic-matter content. *Capability unit I–2; woodland suitability group 1.*

Etowah loam, 2 to 6 percent slopes (EdB).—This soil developed on stream terraces in old alluvium washed from soils underlain by limestone. The 6- to 10-inch surface layer is dark-brown to brown loam. It is underlain by red to yellowish-red silty clay loam. In most places the plow layer is within the original surface layer. Bedrock, generally shale, is at a depth of 6 to 10 feet. In most areas chert makes up 5 percent of the surface layer and from 5 to 10 percent of the subsoil, by volume. Included in the areas mapped are a few areas in which the surface layer is silt loam. In a few small included areas a fragipan occurs at a depth of 20 to 30 inches. These areas make up less than 15 percent of the acreage.

About 75 percent of the acreage is cultivated; the rest is used for pasture. This soil has slow runoff, moderately rapid infiltration, and high available moisture capacity. It has a deep root zone and good tilth. It is suited to all locally grown crops and is productive if well managed. Natural fertility is moderate, and the organic-matter content is moderate. Because of the slopes, there is a slight to moderate erosion hazard. *Capability unit IIe–3; woodland suitability group 1.*

Etowah loam, 6 to 10 percent slopes (EdC).—This well-drained soil developed on stream terraces in old alluvium washed from soils underlain by limestone. The surface layer of dark-brown to brown loam is underlain by red to yellowish-red silty clay loam or clay loam. In most places the plow layer is still within the original surface layer. There are a few rills or thin spots in some places. Bedrock, generally shale, is at a depth of 5 to 8 feet. In most areas chert makes up 5 percent of the surface layer and from 5 to 10 percent of the subsoil, by volume. Included in the areas mapped are a few areas in which the surface layer is silt loam. Also included are a few small areas in which a fragipan occurs at a depth of 20 to 30 inches.

About 40 percent of the acreage is cultivated, 40 percent is used for pasture, and the rest has reverted to trees. This soil has medium runoff, moderately rapid infiltration, and high available moisture capacity. It has a deep root zone and good tilth. It is suited to all locally grown crops and is productive if management is good. Natural fertility is moderate, and the organic-matter content is moderate. Because of the strong slopes there is a moderate to severe erosion hazard. *Capability unit IIIe–3; woodland suitability group 1.*

Farragut Series

The Farragut series consists of well-drained soils that developed on the uplands in residuum weathered from interbedded shale and limestone. These soils are mainly on the broad crests of low hills and ridges. The surface layer is dark reddish-brown silt loam. The subsoil is dark-red, very firm silty clay. Bedrock is at a depth of 4 to 7 feet. The slopes range from 2 to 15 percent. Permeability is moderate. The reaction is very strongly acid.

The Farragut soils are near the Sequoia, Rarden, Conasauga, and Montevallo soils. They have a browner surface layer and are redder than the Sequoia and Rarden soils; they are better drained than the Conasauga soils; and they have a thicker, more clayey subsoil than the Montevallo soils.

The Farragut soils are not extensive. The larger areas are in the central and southern parts of the county. A few small areas are in the eastern part. The original vegetation consisted chiefly of oak, hickory, elm, maple, beech, dogwood, and chestnut but included a little scattered shortleaf pine and loblolly pine. About 70 percent of the acreage is cultivated.

Farragut silt loam, 2 to 6 percent slopes, eroded (FfB2).—This is a dark-red, well-drained soil on shale and limestone ridges. The major horizons are—

0 to 7 inches, dark reddish-brown, friable silt loam.
7 to 35 inches, dark-red and red, very firm silty clay; moderate, fine, subangular blocky structure; the upper 7 inches is firm silty clay loam.
35 to 50 inches +, yellowish-red, very firm silty clay; weak, fine, subangular blocky structure.

The surface layer is dark reddish brown to dark brown. The subsoil is dark-red, red, yellowish-red, or dark reddish-brown silty clay or clay. Small black concretions make up about 3 percent of the subsoil, by volume. In some areas about 5 percent of the soil material, by volume, is soft weathered shale. The present surface layer generally is a mixture of the remnants of the original surface layer and subsoil material. There are some patches where the plow layer consists wholly of the original surface layer, and others where it consists entirely of former subsoil material. Shallow gullies occur in some areas, and there are a few scattered outcrops of limestone. Shale and limestone are at a depth of 50 to 84 inches.

Water moves into and through this soil at a moderate rate, and the available moisture capacity is moderate. The root zone is deep, natural fertility is moderately low, and the organic-matter content is low. This soil is very strongly acid throughout the profile. It has fair tilth but is likely to puddle and clod if cultivated when wet. It is suited to all locally grown crops and is productive if properly managed. There is a moderate erosion hazard because of the slopes. *Capability unit IIe–1; woodland suitability group 1.*

Farragut silty clay loam, 2 to 6 percent slopes, severely eroded (FgB3).—This well-drained soil occurs on low, smooth hill crests on the uplands. The 3- to 5-inch surface layer is reddish-brown to red silty clay loam. It is underlain by red, dark-red, or yellowish-red silty clay or clay. In most places, the plow layer consists mainly of subsoil material. Galled spots and shallow gullies are common. Small black concretions make up about 5 percent of the subsoil, by volume. Weathered soft shale makes up from 5 to 10 percent of some profiles. Shale and limestone are at a depth of 40 to 70 inches, and there are a few scattered outcrops of limestone. Included in the areas mapped are a few less eroded spots in which the surface layer is silt loam.

This soil has moderate infiltration, medium surface runoff, and moderate available moisture capacity. The subsoil absorbs a large amount of water, but the water is held so tightly that much of it is not available to plants. Tilth is only fair because of the large amount of clay in the plow layer, and tillage can be undertaken only within a narrow range of moisture content. Cracks form during dry periods. The organic-matter content is low.

This soil occupies only a small total acreage, most of which is cultivated. It is moderately low in natural fertility but responds well to fertilization. It is suited to a medium range of crops. Erosion is a moderate to severe hazard. *Capability unit IIIe–1; woodland suitability group 2.*

Farragut silty clay loam, 6 to 10 percent slopes, severely eroded (FgC3).—This is a red, well-drained soil that developed in residuum weathered from shale and limestone. It occurs on low, smooth hills on the uplands. The 3- to 5-inch surface layer is reddish-brown to red, firm silty clay loam. It is underlain by 30 to 50 inches of red, dark-red, or yellowish-red silty clay or clay. Most of the original surface layer has been removed by erosion, and the plow layer consists mainly of subsoil material. Shallow gullies are common, and there are some scattered deep gullies. Shale makes up about 7 to 8 percent, by volume, of the soil material. Small black concretions make up from 3 to 5 percent of the subsoil, by volume. Shale and limestone are at a depth of 40 to 70 inches, and there are a few scattered outcrops of limestone.

Infiltration is moderately slow, surface runoff is medium, and the available moisture capacity is low. Many small cracks form when the soil is dry. Tilth is poor, and tillage can be undertaken only within a narrow range of moisture content. This soil is moderately low in natural fertility and low in organic-matter content. It is droughty because the clayey surface layer and subsoil do not readily release water needed by crops. The total acreage is small, and most of it is cultivated. The response to good management is fair. Erosion is a severe hazard if the soil is cultivated and not protected. *Capability unit IVe–1; woodland suitability group 2.*

Farragut silty clay loam, 10 to 15 percent slopes, severely eroded (FgD3).—This red, well-drained soil of the uplands developed in residuum weathered from shale and limestone. Accelerated erosion has removed most of the original surface layer. The present surface layer consists mainly of subsoil material and is red or reddish-brown, firm silty clay loam. The subsoil is red, yellowish-red, or dark-red, very firm silty clay or clay. The depth to shale and limestone is 1½ to 3 feet. There are many shallow gullies and a few scattered V-shaped gullies that are 2 to 3 feet deep. Many small cracks form when the soil is dry.

This soil has moderately slow infiltration, rapid surface runoff, and low available moisture capacity. It is low in natural fertility and low in organic-matter content. All of the acreage has been cultivated, but most of it has reverted to trees. The best use for this soil is pasture, hay, or trees. The erosion hazard is very severe because of the very strong slopes, previous erosion, and the high content of clay. *Capability unit VIe–1; woodland suitability group 2.*

Fullerton Series

The Fullerton series consists of cherty, well-drained soils that developed in residuum weathered from cherty limestone. Chert occurs throughout the profile. These soils occupy weakly to moderately dissected hills and ridges that extend in a northeast-southwest direction. The surface layer is yellowish-brown cherty silt loam. The subsoil is strong-brown to yellowish-red silty clay or silty clay loam. Water moves moderately slowly through the subsoil. The depth to bedrock is 15 to 30 feet or more. The slopes range from 2 to 60 percent but generally are between 10 and 15 percent. The reaction is very strongly acid.

The Fullerton soils occur with the Dewey, Christian, and Clarksville soils. On the lower part of long slopes, they are adjacent to Landisburg soils. They are lighter colored and generally are more cherty than the Dewey and Christian soils. They are less cherty and have a redder subsoil than the Clarksville soils.

The Fullerton soils are in the central part of the county and are moderately extensive. The native vegetation consisted mostly of oak, maple, hickory, and dogwood but included some scattered shortleaf pine. About 25 percent of the acreage is used for row crops, 30 percent is used for pasture, 40 percent is forested, and the rest is idle. These soils are low in natural fertility and contain little organic matter. There are few permanent springs, and the water table is deep.

Fullerton cherty silt loam, 15 to 25 percent slopes (FmE).—This is a well-drained soil on moderately steep uplands. The major horizons are—

0 to 13 inches, yellowish-brown or brownish-yellow, friable cherty silt loam; in wooded areas the upper 3 inches is light olive brown.
13 to 26 inches, strong-brown, firm and very firm silty clay loam; weak to moderate, fine, subangular blocky structure; grades to yellowish red in the lower half.
26 to 55 inches, yellowish-red, extremely firm silty clay mottled with strong brown; moderate, medium, subangular blocky structure.
55 to 65 inches +, yellowish-red, firm very cherty silty clay loam; moderate, fine, subangular blocky structure.

The surface layer is dark grayish brown to light yellowish brown in cultivated areas. The subsoil is yellowish-red to red silty clay loam to silty clay. Cherty limestone is at a depth of 15 to 30 feet. Included in the areas mapped are a few eroded spots that have a strong-brown to yellowish-brown surface layer. Also included are a few areas in which the surface layer is silt loam. Stone-sized chert makes up about 15 percent of some profiles. There are a few scattered outcrops of rock.

The high content of chert and the steep slopes make tillage operations difficult and expensive. This soil is suited to a narrow range of pasture grasses and legumes. Infiltration is moderately rapid, surface runoff is medium, the available moisture capacity is low, and natural fertility is low.

About two-thirds of the acreage is forested. The rest is used for permanent pasture. Yields of temporary and permanent pasture grasses are fair if management is good. *Capability unit VIe–1; woodland suitability group 1.*

Fullerton cherty silt loam, 2 to 6 percent slopes (FmB).—This well-drained soil is on ridgetops. It was derived

from cherty limestone, and chert makes up about 15 to 20 percent of the surface layer. The surface layer is yellowish-brown to light yellowish-brown cherty silt loam. The subsoil is yellowish-red cherty silty clay. Bedrock is at a depth of 15 to 30 feet or more. Included in the areas mapped are a few small areas in which the surface layer is silt loam.

This soil has moderately rapid infiltration and slow surface runoff. The subsoil has moderately slow permeability and moderate available moisture capacity. Natural fertility is low. Tillage is somewhat difficult because of the high content of chert, but if this soil is properly managed it is suited to a medium range of crops. Fair yields can be expected if measures are taken to control erosion, to maintain fertility, and to preserve tilth. Such early truck crops as strawberries, tomatoes, watermelons, and corn are well suited. Erosion is a slight to moderate hazard if this soil is cultivated and not protected. *Capability unit IIe–2; woodland suitability group 1.*

Fullerton cherty silt loam, 6 to 10 percent slopes (FmC).—This well-drained soil occupies chert ridges on the uplands (fig. 3). The surface layer is yellowish-brown to light yellowish-brown cherty silt loam. The subsoil is yellowish-red to red silty clay or silty clay loam. The chert varies in size and amount within the profile. The depth to cherty limestone is 15 to 30 feet or more. Included in the areas mapped are a few areas in which the surface layer is silt loam. There are spots where the color of the subsoil is strong brown or yellowish brown.

This soil has moderately rapid infiltration and medium surface runoff. The subsoil has moderately slow permeability and moderate available moisture capacity. Fertility is low, and the organic-matter content is low. Chert interferes with tillage. This soil is suited to a medium range of crops. If adequately fertilized and otherwise well managed, it can be used for corn, cotton, grain sorghum, small grain, and pasture. The acreages in crops, in pasture, and in trees are about equal. Erosion is a moderate to severe hazard if the soil is cultivated. This soil does not provide suitable sites for ponds. *Capability unit IIIe–2; woodland suitability group 1.*

Fullerton cherty silt loam, 10 to 15 percent slopes (FmD).—This is a well-drained soil on very strong slopes and ridgetops. The surface layer is yellowish-brown, friable cherty silt loam. The subsoil is yellowish-red, very firm silty clay to silty clay loam. The chert varies in size and in amount in all layers. In most places the plow layer is in the original surface layer. There are a few rills and thin spots, and in some areas there are a few stones and outcrops of rock.

This soil has moderately rapid infiltration and medium runoff. The subsoil has moderately slow permeability. The available moisture capacity is moderate. Natural fertility is low, and the organic-matter content is also low. Chert makes tillage difficult. Most locally grown crops and pasture grasses are suitable. There is a severe to very severe erosion hazard, but corn, cotton, grain sorghum, or soybeans can be grown occasionally. *Capability unit IVe–2; woodland suitability group 1.*

Fullerton cherty silt loam, 25 to 60 percent slopes (FmF).—This is a well-drained soil that developed in residuum weathered from cherty limestone. The surface layer is light olive-brown cherty silt loam, and the subsoil is yellowish-red cherty silty clay loam. Fragments of chert are on the surface and throughout the profile. The depth to cherty limestone is 15 to 30 feet or more.

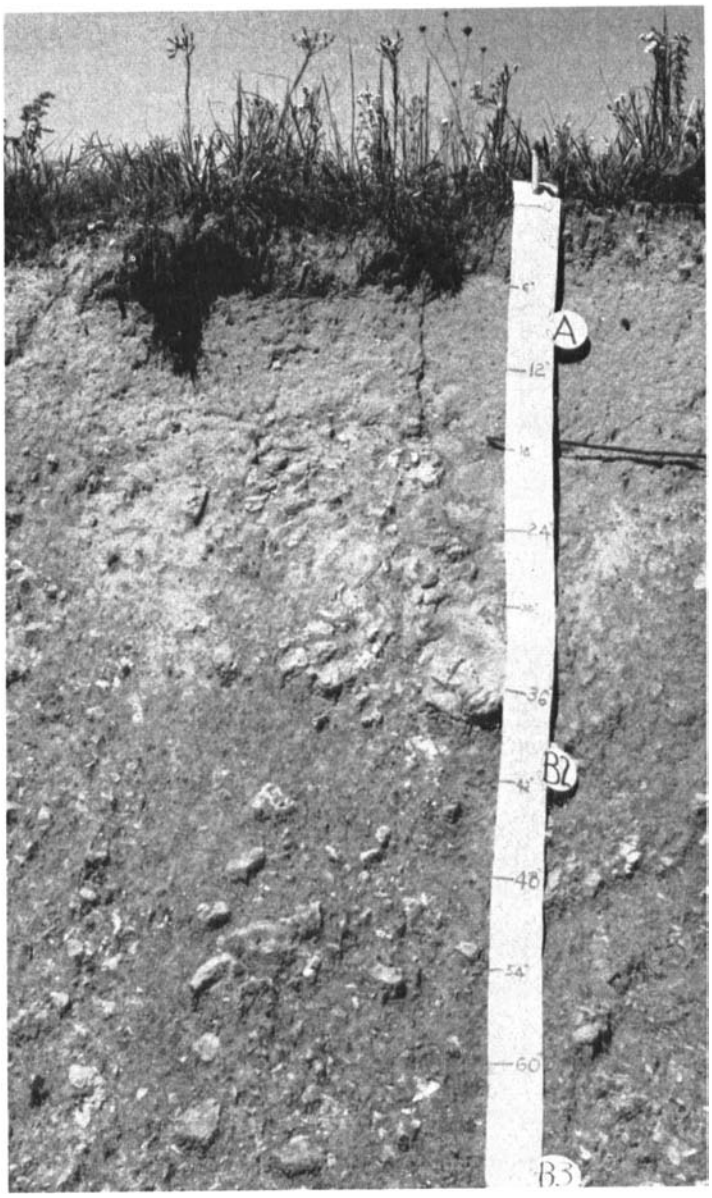

Figure 3.—**Profile of Fullerton cherty silt loam, 6 to 10 percent slopes.**

This soil has moderate infiltration, rapid runoff, low available moisture capacity, and low fertility. It has fair tilth but is too steep for cultivation. It has not been cleared and is forested with hardwoods and pine. The hazard of erosion is very severe. *Capability unit VIIe–1; woodland suitability group 1.*

Fullerton cherty silty clay loam, 6 to 10 percent slopes, severely eroded (FnC3).—This is a yellowish-red, well-drained soil on cherty ridges and hills. The 3- to 6-inch surface layer is strong-brown to yellowish-red cherty silty clay loam. The subsoil is yellowish-red, very firm silty clay or silty clay loam. Erosion has removed all or nearly all of the original surface layer, and in most places the plow layer consists mainly of subsoil material.

This soil has fair tilth, but it forms clods if cultivated when dry. It has moderate infiltration, medium surface runoff, low available moisture capacity, and low natural fertility. It is suited to a medium range of crops. It has been used for corn, cotton, and small grain, but most of the acreage has reverted to pine. About 8 percent of the acreage is now cultivated, and about 30 percent is pastured. Most locally grown pasture grasses are suitable, but grasses grow slowly in the hot, dry summer months. Pine is well suited. The erosion hazard is very severe because of the strong slopes and the fine texture of the surface layer. *Capability unit IVe–2; woodland suitability group 2.*

Fullerton cherty silty clay loam, 10 to 15 percent slopes, severely eroded (FnD3).—This soil occurs in small tracts, and the total acreage is small. Erosion has removed most of the original surface layer, and the present surface layer consists mostly of subsoil material. Shallow gullies have formed in all areas, and there are some widely scattered deep gullies. The surface layer is strong-brown to yellowish-red cherty silty clay loam. The subsoil is yellowish-red to red, very firm silty clay or silty clay loam. Cherty limestone is at a depth of 10 to 20 feet.

This soil has moderate infiltration, rapid surface runoff, and low available moisture capacity. It is difficult to till because of the chert. Natural fertility is low, and the organic-matter content is low. There is a very severe erosion hazard. This soil is not suited to cultivated crops. It is suited to pine, and about 75 percent of the acreage has reverted to pine. *Capability unit VIe–1; woodland suitability group 2.*

Fullerton cherty silty clay loam, 15 to 25 percent slopes, severely eroded (FnE3).—This soil is on ridges and has numerous shallow and deep gullies. Erosion has removed all of the original cherty silt loam surface layer. The present surface layer is strong-brown to yellowish-red cherty silty clay loam. The subsoil is yellowish-red to red, very firm silty clay or silty clay loam. Bedrock is at a depth of 10 to 20 feet.

This soil has moderately slow infiltration, rapid runoff, and low available moisture capacity. It has fair tilth but is difficult to till because of the chert, gullies, and moderately steep slopes. Natural fertility is low. Some of the acreage is pastured, but most of it is idle or is forested with pine. This soil is not suited to cultivation. It can be used for growing pine. The erosion hazard is very severe. *Capability unit VIIe–1; woodland suitability group 2.*

Gilpin Series

The Gilpin series consists of stony, well-drained soils that developed in residuum weathered from shale and siltstone. The surface layer is light olive-brown stony silt loam. The subsoil is chiefly silty clay loam, but the upper and lower parts commonly are gravelly. These soils have slopes of 25 to 60 percent. They are moderately permeable, moderate in organic-matter content, and low in natural fertility. The entire profile is very strongly acid.

The Gilpin soils are associated with the Dekalb, Steekee, Bodine, and Allen soils. They lack the chert content of the Bodine soils and are more silty than the Dekalb and Steekee soils. They have a less red and slightly finer textured subsoil than the Allen soils.

The Gilpin soils are on mountaintops and on the upper part of slopes on Chestnut and Horn Mountains. The total acreage is small and is of little agricultural value. It is forested mainly with hardwoods, but there is some scattered shortleaf pine. All of the acreage has been mapped in complexes with the Dekalb soils.

Gilpin-Dekalb stony complex, 25 to 60 percent slopes (GDF).—This is a complex of well-drained soils that developed in residuum derived from shale, siltstone, and sandstone. The Gilpin soil has a slightly finer textured subsoil and a browner profile throughout than the Dekalb soil. The profiles vary greatly within short distances. About 60 percent of the acreage consists of the Gilpin soil.

The major horizons of a representative Gilpin stony soil are—

0 to 9 inches, light olive-brown to light yellowish-brown, very friable stony silt loam that is about 35 percent stones, cobblestones, and gravel, by volume.
9 to 25 inches, strong-brown, firm silty clay loam; moderate, fine, angular blocky structure; upper and lower few inches commonly are gravelly.
25 to 50 inches +, olive-gray and strong-brown, soft shale.

The surface layer ranges to grayish brown in color and to stony fine sandy loam in texture. Rock outcrops and stones cover from 5 to 25 percent of the surface. The depth to weathered shale and siltstone ranges from 16 to 30 inches (fig. 4).

The major horizons of a representative Dekalb stony soil are—

0 to 10 inches, light yellowish-brown, very friable stony fine sandy loam; uppermost 2 inches is gray.
10 to 20 inches, yellowish-brown, friable stony sandy clay loam; weak, fine, granular structure; about 20 percent stone-sized fragments of sandstone, by volume.
20 to 30 inches +, soft, light brownish-gray and dusky red sandstone.

The surface layer ranges to light olive brown and grayish brown in color and to stony silt loam in texture. Stones and outcrops of rock cover about 10 to 30 percent of the surface. The depth to soft, weathered sandstone is 12 to 25 inches.

Infiltration is moderate, runoff is very rapid, and the available moisture capacity is low. The vegetation consists mainly of hardwoods but includes some scattered pine. These soils are not suited to cultivation, because they are stony and steep and have a shallow root zone. They are suited to trees, but logging is somewhat difficult. *Capability unit VIIs–1; woodland suitability group 5.*

Gullied Land (Gul)

About 75 percent of the acreage of this miscellaneous land type consists of gullies, most of which cannot be crossed by tillage implements. All of the original surface layer and most of the subsoil have been removed by erosion, and deep gullies have cut into the compact underlying material. In places an intricate network of deep gullies has completely destroyed the soil profile.

This land type occurs in small scattered areas throughout the county. Before these areas were eroded, the soils

Figure 4.—**Sandstone and shale bedrock of the Gilpin-Dekalb stony complex, 25 to 60 percent slopes.**

were mainly of the Clarksville, Colbert, Dewey, Farragut, and Fullerton series.

This land has poor tilth, rapid runoff, slow infiltration, low available moisture capacity, and low natural fertility. There is a very severe hazard of erosion. Intensive management is needed if these areas are used to grow trees. *Capability unit VIIe–4; not classified in a woodland suitability group.*

Guthrie Series

The Guthrie series consists of poorly drained soils that have a plastic, clayey subsoil. These soils developed in residuum weathered from limestone. They occur on level flats or in slight depressions on the uplands. The surface layer is dark grayish-brown silt loam. It is underlain at a depth of about 10 inches by dark-gray, mottled, extremely firm, plastic clay. The depth to bedrock is 4 to 7 feet. The slopes range from 0 to 2 percent. Permeability is moderate in the surface layer and very slow in the subsoil. The reaction is very strongly acid but becomes neutral or alkaline in the lower part of the subsoil.

These soils are similar to the Colbert soils and are near some Conasauga soils. They are more poorly drained and grayer than either the Colbert or the Conasauga soils, and they have a more plastic subsoil than the Conasauga soils.

The Guthrie soils occur in small areas throughout the county and have a small total acreage. They are not suited to cultivated crops, because of an excess amount of surface water and a slowly permeable subsoil. They are suited to a narrow range of pasture grasses and legumes. The native vegetation consisted mainly of willow oak, water oak, sweetgum, and maple but included a few scattered pine.

Guthrie silt loam, clay subsoil variant (0 to 2 percent slopes) (Gut).—This grayish, poorly drained soil is in depressions and on flats on the uplands. The major horizons are—

0 to 6 inches, mottled dark grayish-brown, friable silt loam.
6 to 26 inches, dark-gray, extremely firm and plastic clay with mottles of dark brown and yellowish brown.
26 to 36 inches, mottled yellowish-brown, extremely firm and slightly plastic silty clay.
36 to 50 inches +, mottled gray and olive-brown, extremely firm and plastic clay.

The surface layer ranges from light gray to dark grayish brown. The subsoil is gray or dark gray in color and is clay or silty clay in texture. Areas that are near eroded red soils have a browner surface layer than the soil described. Included in the areas mapped are a few small areas in which the surface layer is cherty silt loam. Also included is an area south of Calhoun, on U.S. Highway No. 41, in which the surface layer is very dark gray loam and the next layer is very dark grayish-brown clay mottled with yellowish brown.

Runoff is very slow, and infiltration is moderately slow. The movement of air and water through the profile is greatly restricted by the heavy subsoil. The available moisture capacity is low, natural fertility is moderately low, and the organic-matter content is moderately low. The hazard of excess water is very severe. This soil has a shallow root zone and poor tilth. It is not suited to cultivated crops. It is best suited to a water-tolerant pasture grass, such as tall fescue. *Capability unit IVw–2; woodland suitability group 8.*

Hartsells Series

The Hartsells series consists of well-drained soils on uplands that are characterized by gently rolling hills and winding shallow draws. These soils developed in residuum weathered from sandstone. The surface layer is dark grayish-brown fine sandy loam. Yellowish-brown, friable sandy clay loam occurs at a depth of about 20 inches. Bedrock is at a depth of 5 to 7 feet. The entire profile is strongly acid. The subsoil has moderately rapid permeability. The slopes range from 2 to 10 percent.

The Hartsells soils are adjacent to the Clarksville, Christian, and Fullerton soils. In color they are similar to the Clarksville soils, but they lack the chert content. They lack the red color of the Christian soils, which have a yellowish-red to dark-red subsoil, and they lack the red color and the chert content of the Fullerton soils.

The Hartsells soils are in the south-central part of the county. They occupy a moderate acreage and are important to agriculture. The native vegetation consisted mainly of oak, hickory, and pine. Most of the acreage is used for cotton, corn, and pasture, but a few small areas have reverted to pine.

Hartsells fine sandy loam, 2 to 6 percent slopes (HGB).—This is a well-drained, friable soil that developed in sandstone residuum. The major horizons are—

0 to 11 inches, dark grayish-brown, friable fine sandy loam.
11 to 20 inches, light olive-brown, friable loam.
20 to 38 inches, yellowish-brown and brown, friable sandy clay loam; weak, fine, subangular blocky structure.
38 to 61 inches +, mottled brown, yellowish-red, yellowish-brown, and brownish-gray, friable to slightly brittle fine sandy loam and loam.

The surface layer ranges from dark grayish brown to light brownish gray. The subsoil commonly is yellowish brown, but weathered concretions give small spots in the profile a yellowish-red color. Some profiles are mottled at a depth of 36 inches; others are yellowish brown to a depth of 50 inches. Small, dark reddish-brown concretions make up from 1 to 3 percent of the subsoil, by volume. A few rills are evidence of slight erosion, but the plow layer is still within the original surface layer.

This soil has moderately rapid infiltration, moderately rapid permeability, and slow runoff. Most of the water that falls on the surface enters the soil. Good tilth is easily maintained if management is good. The available moisture capacity is adequate for most crops. Most locally grown crops are suitable. The commonly grown crops are cotton, corn, and permanent pasture. Because of the gentle slopes, erosion is a slight to moderate hazard. The soil material is suitable for the construction of dams. *Capability unit IIe–3; woodland suitabilty group 1.*

Hartsells fine sandy loam, 6 to 10 percent slopes (HGC).—This is a well-drained, friable soil on sloping hills and hilltops. The surface layer is dark grayish-brown fine sandy loam. The subsoil is yellowish-brown, friable sandy clay loam. Dark reddish-brown concretions make up from 1 to 3 percent of the subsoil, by volume. Sandstone bedrock is at a depth of 60 to 84 inches. There are a few rills and thin spots, but in most areas the plow layer is still within the original surface layer. Included in the areas mapped are a few small areas in which the surface layer is cherty silt loam.

This soil has moderately rapid infiltration, moderately rapid permeability, medium runoff, and moderate available moisture capacity. Good tilth is easily maintained if management is good. The hazard of erosion is moderate to severe because of the strong slopes. Natural fertility is moderately low, but the response to fertilization is good. All locally grown crops are suitable. Most of the acreage is used for cultivated crops and pasture. The soil material is suitable for the construction of dams. *Capability unit IIIe–3; woodland suitability group 1.*

Huntington Series

The Huntington series consists of well-drained soils that developed in recent local alluvium along small drainageways, on toe slopes, and in saucer-shaped depressions. The uppermost 10 inches is dark-brown silt loam. It is underlain by dark reddish-brown silt loam. Yellowish-red to strong-brown silty clay loam occurs at a depth of 24 to 36 inches. These soils have moderate permeability and are very strongly acid throughout the profile. The slopes range from 0 to 4 percent.

The Huntington soils are near the Ennis and Landisburg soils. They have a browner profile than the Ennis and Landisburg soils. They are less cherty than the Landisburg soils, and they lack a fragipan.

The Huntington soils occur in small areas throughout the county. The original vegetation consisted mainly of oak, hickory, maple, dogwood, and elm but included some scattered shortleaf pine and loblolly pine. About 70 percent of the acreage is cultivated, 20 percent is used for pasture, and 10 percent is forested. Natural fertility is high, and the organic-matter content is moderate.

Huntington silt loam, acid variant, local alluvium (0 to 4 percent slopes) (HXA).—This well-drained soil occurs on toe slopes, at the head of small draws, and in depressions on the uplands. The major horizons are—

0 to 10 inches, dark-brown, friable silt loam.
10 to 31 inches, dark reddish-brown to dark-brown, friable to very friable silt loam.
31 to 50 inches +, yellowish-red, friable silty clay loam; weak, fine, subangular blocky structure.

The depth to silty clay loam ranges from 24 to 36 inches. In some places there are a few, fine, faint mottles at a depth of 24 inches. Some small areas in which the surface layer is fine sandy loam or silty clay loam are included in the areas mapped. These areas make up about 14 percent of the total acreage.

This soil has moderate infiltration, very slow runoff, and high available moisture capacity. The root zone is deep, and tilth is good. Natural fertility is high, and the organic-matter content is moderate. The more silty areas are sticky and cannot be cultivated when wet. Small cracks that are from 6 to 8 inches apart form during dry periods. This soil is productive and is suited to all locally grown crops and pasture grasses. It is very strongly acid. There is no hazard of erosion or of wetness. *Capability unit I–3; woodland suitability group 6.*

Jefferson Series

The Jefferson series consists of well-drained soils that developed in old local alluvium washed from areas of sandstone, shale, and cherty limestone. These soils are on toe slopes and fans along the base of ridges and mountains. The surface layer is dark grayish-brown gravelly fine sandy loam. The subsoil is yellowish-brown and yellowish-red silty clay loam. Weathered shale or limestone is at a depth of 3 to 7 feet. Permeability is moderately rapid in the surface layer and moderate in the subsoil. The reaction is very strongly acid. The slopes range from 6 to 25 percent.

The Jefferson soils are near the Allen, Locust, and Sequatchie soils. They have a yellowish-brown subsoil, whereas the Allen soils have a red subsoil. They are similar to the Locust soils in color but lack the fragipan. They are much older than the Sequatchie soils.

The Jefferson soils occur in the western part of the county, mainly along toe slopes and fans on Horn and Chestnut Mountains. The native vegetation consisted

mainly of oak, hickory, maple, and elm but included some shortleaf pine and loblolly pine. About 30 percent of the acreage is used for row crops, 20 percent is in pasture, and 50 percent is forested.

Jefferson gravelly fine sandy loam, 6 to 10 percent slopes (JaC).—This is a well-drained soil on the toe slopes of mountains and steep hills. The major horizons are—

0 to 9 inches, dark grayish-brown, very friable gravelly fine sandy loam; lower half grades to light yellowish brown.
9 to 40 inches, yellowish-brown and yellowish-red, firm silty clay loam; weak, fine, subangular blocky structure; uppermost few inches is clay loam.
40 to 52 inches +, yellowish-red, very firm silty clay loam; moderate, fine, subangular blocky structure; many strong-brown, brownish-yellow, and light-gray mottles.

The subsoil ranges from yellowish brown and yellowish red to strong brown. A few areas are included that are not gravelly. Cobblestones as large as 10 inches in diameter occur in some profiles. Weathered shale and limestone are at a depth of 36 to 84 inches.

This soil has moderately rapid infiltration and medium runoff. The available moisture capacity is high, natural fertility is moderate, and the organic-matter content is moderate. This soil has good tilth and a deep root zone. It is suited to a wide range of locally grown crops and pasture grasses. It responds to good management and especially to fertilization. The erosion hazard is moderate to severe because of the slopes. *Capability unit IIIe–3; woodland suitability group 1.*

Jefferson gravelly fine sandy loam, 10 to 15 percent slopes (JaD).—This well-drained soil developed in old local alluvium, on toe slopes at the base of mountains in the western part of the county. The 6- to 8-inch surface layer of light yellowish-brown or dark grayish-brown gravelly fine sandy loam is from 15 to 18 percent sandstone gravel, by volume. The subsoil is yellowish-brown, strong-brown, or yellowish-red silty clay loam or sandy clay loam. In most places the plow layer is within the original surface layer. There are a few rills or thin spots. Included in the areas mapped are a few areas that are not gravelly.

This soil has moderately rapid infiltration, medium runoff, and moderate available moisture capacity. It has good tilth and a deep root zone. Natural fertility is moderate, and the organic-matter content is moderate. Most locally grown crops and pasture grasses are suitable. Most of the acreage was cultivated for a short period but now has been either planted to pine or allowed to revert naturally to forest. There is a severe to very severe erosion hazard because of the very strong slopes. *Capability unit IVe–1; woodland suitability group 1.*

Jefferson gravelly fine sandy loam, 15 to 25 percent slopes (JaE).—This is a well-drained soil that developed in old local alluvium on mountain slopes. The surface layer of dark grayish-brown gravelly fine sandy loam is from 15 to 25 percent sandstone gravel and cobblestones, by volume. Stones or boulders cover from 1 to 3 percent of the surface and make up about 10 percent of the subsoil material. The subsoil is yellowish-brown, strong-brown, or yellowish-red silty clay loam to sandy clay loam. The depth to shale or cherty limestone is 3 to 7 feet.

This soil has moderately rapid infiltration, rapid runoff, and moderate available moisture capacity. It is not suited to cultivated crops because of the moderately steep slopes, but it is suited to a medium range of pasture grasses. Good management is needed if it is used for pasture, because of the very severe erosion hazard. This soil has never been cleared for cultivation. *Capability unit VIe–1; woodland suitability group 1.*

Klinesville Series

The Klinesville series consists of well-drained, shaly soils that developed in residuum weathered from acid, red shale. The uplands on which these soils formed are characterized by numerous draws, intermittent streams, and steep hills of irregular shape. The surface layer is dark reddish-gray shaly silt loam. It is underlain by reddish-brown shaly silty clay loam. The depth to shale is 10 to 20 inches. These soils are strongly acid to very strongly acid. They are low in natural fertility, moderately low in organic-matter content, and moderately rapidly permeable. The slopes range from 10 to 60 percent.

The Klinesville soils are adjacent to the Montevallo, Rarden, Sequoia, and Farragut soils. The Klinesville and Montevallo soils are more than 50 percent shale. The Klinesville soils have a yellowish-red to red subsoil, whereas the Montevallo soils have a light olive-brown to strong-brown subsoil. The Klinesville soils contain more shale and less clay than the Rarden, Sequoia, and Farragut soils.

The Klinesville soils occur mainly in the eastern part of the county, adjacent and parallel to U.S. Highway No. 411. The vegetation consists of hardwoods and some scattered pine, but there are areas where Virginia pine and shortleaf pine are dominant. About 95 percent of the acreage is forested. These soils are droughty and are suited only to a narrow range of grasses and legumes.

Klinesville shaly silt loam, 25 to 60 percent slopes (KjF).—This friable, shaly soil is underlain by red shale. The major horizons are—

0 to 5 inches, dark reddish-gray, very friable shaly silt loam.
5 to 11 inches, reddish-brown, friable shaly silty clay loam; weak, fine, granular structure to very fine, subangular blocky structure.
11 to 16 inches +, soft, red, acid shale.

The depth to shale is 10 to 16 inches. In some places there are outcrops of shale, and at the base of some hills there are outcrops of limestone. The surface layer ranges from 3 to 6 inches in thickness and from very dark grayish brown to dark reddish gray in color. The subsoil is yellowish red, reddish brown, or red. In most areas it is shaly silty clay loam, but in some areas it is shaly silt loam. Included in the areas mapped are small areas of Montevallo soils. These inclusions make up less than 15 percent of the acreage and are so intricately associated that it was not practical to map them separately. In many areas shale covers about 80 percent of the surface, and in some areas quartz gravel is on the surface.

Water moves into this soil moderately rapidly, but surface runoff is rapid because of the steep slopes. The available moisture capacity is low, natural fertility is low, and the organic-matter content is low. This soil is steep, shaly, and shallow. Consequently, it is not suitable for cultivation. *Capability unit VIIe–3; woodland suitability group 10.*

Klinesville shaly silt loam, 10 to 15 percent slopes (KjD).—This is a friable, shaly soil that developed on ridges on the uplands. The surface layer is dark reddish-gray to very dark grayish-brown shaly silt loam. It is underlain by yellowish-red, reddish-brown, or red shaly silty clay loam. In some areas this underlying layer is shaly silt loam. The depth to shale is 12 to 20 inches. There is little evidence of soil loss because of accelerated erosion. Shale covers as much as 80 percent of the surface in some areas, and irregularly shaped quartz gravel also occurs on the surface. Included in the areas mapped are small areas of Montevallo soils. These inclusions make up less than 15 percent of the acreage.

Water moves into and through this soil moderately rapidly. Because of the thin solum and the very strong slopes, runoff begins quickly and is rapid during rains. Natural fertility is low, and the organic-matter content is low. About 90 percent of the acreage is forested. The rest is used for unimproved pasture and general crops. This soil is poorly suited to crops, but it is suited to a narrow range of pasture grasses. Pasture grasses make fair growth during the spring and fall if the soil is adequately fertilized and otherwise well managed. Virginia pine and loblolly pine are well suited. *Capability unit VIe–3; woodland suitability group 10.*

Klinesville shaly silt loam, 15 to 25 percent slopes (KjE).—This friable, shaly soil is on ridges on the uplands. The 3- to 6-inch surface layer is dark reddish-gray to very dark grayish-brown shaly silt loam. It is underlain by 8 to 12 inches of reddish-brown shaly silty clay loam. The depth to shale is 11 to 18 inches. There is little evidence of accelerated erosion. Shale and irregularly shaped quartz gravel cover as much as 80 percent of the surface. Included in the areas mapped are some small areas of Montevallo soils.

Water moves into and through this soil at a moderately rapid rate. Because of the steepness of the slopes and the thin solum, runoff begins quickly and is rapid during rains. This soil is low in natural fertility and low in organic-matter content. It is poorly suited to cultivated crops but is suited to a narrow range of pasture grasses and legumes. It has a shallow root zone and has low available moisture capacity. Most of the acreage is forested with hardwoods, pine, or mixed stands of hardwoods and pine. The erosion hazard is very severe. *Capability unit VIIe–3; woodland suitability group 10.*

Landisburg Series

The Landisburg series consists of moderately well drained to somewhat poorly drained soils that have a weak to strong fragipan. These soils developed in cherty local alluvium, along intermittent streams and on level to concave foot slopes, benches, and fans. The surface layer is dark grayish-brown cherty silt loam. The subsoil is a brownish-yellow silty clay loam. The fragipan is at a depth of 15 to 30 inches. In some areas the fragipan is cemented; in other areas it is extremely cherty. Bedrock is at a depth of 2½ to 6 feet. The slopes range from 0 to 10 percent. Permeability is moderately rapid in the surface layer and in the upper part of the subsoil but slow in the fragipan. These soils are very strongly acid. They are moderately low in natural fertility and low in organic-matter content.

765–730—65——3

The Landisburg soils are near the Ennis soils. Because of the fragipan, the Landisburg soils are not so well drained as the Ennis soils. They are more cherty and have more distinct horizons than the Stendal, Philo, and Huntington soils and are not so well drained as the Huntington soils.

The Landisburg soils occur in small areas throughout the central part of the county. They developed under a forest cover of hardwoods and some pine. About 30 percent of the acreage is cultivated, 35 percent is pastured, and the rest is idle or forested. These soils are suited to corn, vegetables, hay, small grain, and most pasture grasses but are poorly suited to deep-rooted crops.

Landisburg cherty silt loam, 0 to 2 percent slopes (LlA).—This is a moderately well drained to somewhat poorly drained soil that occurs downslope from areas of Clarksville, Bodine, and Fullerton soils. The depth to the fragipan is 15 to 30 inches. The major horizons are—

0 to 12 inches, dark grayish-brown, friable cherty silt loam; lower few inches generally is light olive brown.
12 to 21 inches, brownish-yellow, firm silty clay loam; weak, very fine, subangular blocky structure.
21 to 28 inches, brownish-yellow, firm silty clay loam mottled with pale olive (fragipan); hard, compact, and brittle when dry.
28 to 40 inches, yellowish-brown, red, and strong-brown, firm silty clay loam; moderate, medium, subangular blocky structure.
40 to 50 inches +, slightly weathered shale and chert.

The surface layer ranges from pale olive to dark grayish brown in color and from 6 to 10 inches in thickness. The subsoil ranges from yellowish brown to brownish yellow in color and is silty clay loam, cherty silty clay loam, silt loam, or cherty silt loam. In some areas there are a few, fine, faint to distinct mottles in the lower part of the subsoil. In some places concretions make up as much as 10 percent of the subsoil, by volume, but in other places there are none. The depth to shale or limestone is 30 to 72 inches. Included in the areas mapped are some areas in which the texture of the plow layer is fine sandy loam, silt loam, or cherty fine sandy loam.

Infiltration is moderate, surface runoff is slow, and the available moisture capacity is low. Natural fertility is moderately low, and the organic-matter content is also moderately low. There is a slight to moderate hazard of excess water because of the fragipan and the position on the landscape. This soil is suited to a medium range of crops and can be used intensively if management is good. It is also suited to a medium range of locally grown grasses and legumes. *Capability unit IIw–2; woodland suitability group 7.*

Landisburg cherty silt loam, 2 to 6 percent slopes (LlB).—This is a moderately well drained soil that developed in old local alluvium along the base of chert ridges. The surface layer is dark grayish-brown to dark olive-gray cherty silt loam. The subsoil is brownish-yellow to yellowish-brown cherty silty clay loam, cherty silt loam, or silty clay loam. In some places chert makes up as much as 10 percent of the subsoil material, by volume. In other places there is none. A mottled, compact, brittle fragipan occurs at a depth of 15 to 30 inches. The depth to shale or limestone is 2½ to 6 feet. Included in the areas mapped are some areas in which the surface layer is cherty fine sandy loam or fine sandy loam.

Infiltration is moderate, and runoff is medium. Tilth is fair, but the available moisture capacity is low, and the root zone is shallow because of the fragipan. This soil is suited to corn, lespedeza, small grain, and grain sorghum, but it is poorly suited to cotton and alfalfa. It can be used intensively if management is good. About 40 percent of the acreage is used for crops, 20 percent is used for pasture, 20 percent is idle, and the rest is wooded. There is a slight hazard of excess water and a slight to moderate erosion hazard. *Capability unit IIe–2; woodland suitability group 7.*

Landisburg cherty silt loam, 6 to 10 percent slopes (LIC).—This is a moderately well drained soil that developed in old local alluvium. It is downslope from areas of Bodine, Clarksville, and Fullerton soils. A fragipan occurs at a depth of 15 to 30 inches. The surface layer of dark olive-gray, very friable cherty silt loam is underlain by brownish-yellow, firm silty clay loam or cherty silty clay loam. The depth to shale or limestone is 4 to 6 feet. A few concretions occur in some profiles, and in some areas there are a few rills. Included in the areas mapped are a few small areas in which the surface layer is silt loam.

Water infiltrates at a moderate rate, surface runoff is medium, and the available moisture capacity is low. The organic-matter content is low, and natural fertility is moderately low. Because of the content of chert, this soil responds poorly to management. If adequately fertilized and otherwise well managed, it produces moderate yields of corn, small grain, lespedeza, and all of the common grasses and legumes. The hazard of erosion is moderate to severe if this soil is cultivated. Most of the acreage is used for pasture and cultivated crops; about 30 percent has reverted to trees. *Capability unit IIIe–2; woodland suitability group 7.*

Leadvale Series

The Leadvale series consists of moderately well drained soils that have a distinct fragipan at a depth of 20 to 40 inches. These soils developed in local alluvium, on foot slopes and along narrow drainageways. The surface layer is dark yellowish-brown silt loam, and the subsoil is brownish-yellow or yellow silty clay loam. Shale is at a depth of 3 to 7 feet. Permeability is moderate in the surface layer, moderately slow in the subsoil, and slow in the fragipan. Infiltration is moderately rapid. The reaction is very strongly acid, natural fertility is moderately low, and the organic-matter content is moderate. The slopes range from 0 to 6 percent.

The Leadvale soils are downslope from areas of Muse, Sequoia, Montevallo, and Conasauga soils. They have a distinct fragipan and are not so brown as the Muse and Sequoia soils, which lack a fragipan. They are not so well drained as the Montevallo soils, and they have a less plastic subsoil than the Conasauga soils.

The Leadvale soils are of minor extent in the county. They occur in small areas throughout the shale belts. The native vegetation consisted mainly of hardwoods but included some scattered shortleaf pine and loblolly pine. About 20 percent of the acreage is used for row crops, 40 percent is used for pasture, and the rest is idle or forested.

Leadvale silt loam, 0 to 2 percent slopes (LJA).—This is a moderately well drained soil that developed in old local alluvium on foot slopes and along drainageways. The major horizons are—

0 to 5 inches, dark yellowish-brown, friable silt loam.
5 to 25 inches, brownish-yellow or yellow, firm to very firm silty clay loam; moderate, medium, subangular blocky structure.
25 to 40 inches, olive-yellow, very firm, compact and brittle silty clay loam mottled with yellowish brown (fragipan); 15 percent black concretions, by volume.
40 to 50 inches +, mottled olive-brown, light-gray, and yellowish-red, firm silty clay loam; weak, fine, subangular blocky structure.

The surface layer is yellowish brown, pale olive, or dark yellowish brown. The subsoil is yellow, yellowish brown, or strong brown. Shale fragments occur throughout some profiles. The fragipan is from 8 to 24 inches thick and occurs at a depth of 20 to 40 inches. Included in the areas mapped are a few areas in which the surface layer is shaly silt loam. Also included are some somewhat poorly drained areas in which the subsoil is mottled at a depth of 15 inches.

This soil has very slow surface runoff, moderately rapid infiltration, and moderate available moisture capacity. It has good tilth and a moderately deep root zone. The organic-matter content is moderately low. There is a slight to moderate hazard of excess water in wet seasons because of the fragipan, the nearly level slopes, and the position on the landscape. This soil is suited to a medium range of locally grown crops and to most locally grown pasture grasses and legumes. About half the acreage is forested; the rest is used mostly for pasture. *Capability unit IIw–2; woodland suitability group 7.*

Leadvale silt loam, 2 to 6 percent slopes (LJB).—This soil has a distinct fragipan. Most of the acreage is on foot slopes between shaly soils of the uplands and Stendal soils of the bottom lands. The 5- to 7-inch surface layer is light yellowish-brown to yellowish-brown silt loam. The subsoil is brown to brownish-yellow silty clay loam. A compact, brittle fragipan, which occurs at a depth of 20 to 40 inches, has common, fine, distinct mottles of pale olive and olive yellow. Shale fragments occur throughout some profiles. Included in the areas mapped are a few areas in which the surface layer is shaly silt loam.

This soil has medium surface runoff, moderately rapid infiltration, and moderate available moisture capacity. It has a moderately deep root zone and good tilth but is low in organic-matter content. About 30 percent of the acreage is used for row crops, 50 percent is used for pasture, and the rest is forested. This soil is low in natural fertility but responds to management. It is suited to a medium range of locally grown crops and pasture grasses. Yields of deep-rooted plants are low because of the fragipan. There is a slight to moderate erosion hazard. *Capability unit IIe–2; woodland suitability group 7.*

Lehew Series

The Lehew series consists of well-drained soils that developed in residuum weathered chiefly from sandstone and to a small extent from interbedded shale and sandstone. The surface layer is dark grayish-brown gravelly fine sandy loam, and the subsoil is reddish-brown or

yellowish-red gravelly clay loam. The depth to partially weathered rock ranges from about 2 to 3 feet. These soils are low in fertility and low in organic-matter content. They are rapidly permeable and are very strongly acid. The slopes range from 2 to 60 percent.

The Lehew soils generally are near the Dekalb, Ramsey, Montevallo, and Rarden soils. They have a redder subsoil than the Dekalb and Ramsey soils, and they have a coarser textured surface layer and a redder subsoil than the Montevallo soils. They are more sandy throughout than the Rarden soils.

The Lehew soils are of minor extent in the county. They occur in a narrow belt that begins in the southwestern part of the county and extends in a north-northeast direction through the county. All of the acreage is mapped in complexes with the Dekalb soils or the Ramsey soils. About 10 percent of the acreage is cultivated, 30 percent is used for pasture, and the rest is forested. The native vegetation consisted of hardwoods and some scattered pine.

Lehew-Dekalb gravelly fine sandy loams, 10 to 15 percent slopes (LbD).—These well-drained soils of the uplands developed in residuum weathered from sandstone and shale. The Lehew soil has a reddish-brown, friable gravelly clay loam subsoil, and the Dekalb soil has a yellowish-brown, gravelly sandy clay loam subsoil. In most places the Lehew soil has a thicker root zone than the Dekalb soil, but the soil pattern is not uniform, and in many places it changes within a few feet.

The Lehew soil occupies about 55 percent of the acreage, and the Dekalb soil occupies about 45 percent.

The major horizons of Lehew gravelly fine sandy loam are—

0 to 12 inches, dark grayish-brown, very friable gravelly fine sandy loam; lower part is weak-red loam.
12 to 20 inches, reddish-brown or yellowish-red, friable gravelly clay loam.
20 to 36 inches, reddish-brown and brownish-yellow, friable gravelly silty clay mottled with light gray.
36 to 56 inches +, weak-red, weathered, soft sandstone.

In the Lehew soil, the subsoil ranges to dark reddish gray, yellowish red, and weak red. At a depth of 12 to 20 inches, the subsoil ranges to silty clay loam. The depth to soft, weathered sandstone is 2 to 3 feet. In cultivated areas, erosion has removed some of the surface layer, but the plow layer is still within the original surface layer.

The major horizons of Dekalb gravelly fine sandy loam are—

0 to 7 inches, brown, very friable gravelly fine sandy loam.
7 to 15 inches, yellowish-brown, friable sandy clay loam; moderate, fine, subangular blocky structure.
15 to 25 inches, yellowish-brown, friable gravelly sandy clay loam mottled with very pale brown; 50 to 60 percent sandstone and shale, by volume.
25 to 40 inches +, brownish-yellow and light-gray, slightly weathered sandstone.

In the Dekalb soil, the surface layer ranges from brown to yellowish brown to olive brown in color. The 7- to 15-inch layer ranges to strong brown in color and to gravelly sandy clay loam in texture. The depth to weathered sandstone is 1 to 2 feet. The plow layer is within the original surface layer in most areas. There are a few rills and thin spots in pastured areas.

Runoff is rapid, the available moisture capacity is low, natural fertility is low, and the organic-matter content is low. The root zone is moderately deep, and tilth is good. About 5 percent of the acreage is cultivated, 40 percent is used for pasture, and the rest is forested. These soils are poorly suited to row crops because of the slopes and the low available moisture capacity. They are suited to a medium range of pasture grasses and legumes. Yields are average if management is good. Pine is well suited. There is a very severe erosion hazard because of the very strong slopes and rapid runoff. *Capability unit VIe–3; woodland suitability group 3.*

Lehew-Dekalb gravelly fine sandy loams, 2 to 6 percent slopes (LbB).—These soils of the uplands developed in material weathered from sandstone and interbedded shale. The surface layer is dark grayish-brown, brown, or olive-brown gravelly fine sandy loam. The Lehew soil has a reddish-brown, friable gravelly clay loam subsoil, and the Dekalb soil has a yellowish-brown, friable sandy clay loam subsoil. At a depth of 15 to 25 inches, the Dekalb soil is 50 to 60 percent sandstone, by volume. The depth to weathered bedrock is 1 to 3 feet. There are a few rills, and in some areas there are a few shallow gullies, but the plow layer is still within the original surface layer. Included in the areas mapped are a few areas in which the surface layer is fine sandy loam. The Lehew soil occupies about 60 percent of the acreage.

Runoff is slow, infiltration is rapid, natural fertility is low, and the organic-matter content is low. These soils have a moderately deep root zone and good tilth. They are suited to only a narrow range of crops but are moderately well suited to pasture grasses and legumes. Pastures need to be fertilized and otherwise well managed to produce average yields. There is a moderate to severe erosion hazard because of the slopes. *Capability unit IIIe–6; woodland suitability group 3.*

Lehew-Dekalb gravelly fine sandy loams, 6 to 10 percent slopes (LbC).—These soils of the uplands developed in material weathered from sandstone and interbedded shale. The surface layer is dark grayish-brown, brown, or olive-brown gravelly fine sandy loam. The Lehew soil has a reddish-brown, friable gravelly clay loam subsoil, and the Dekalb soil has a yellowish-brown, friable sandy clay loam subsoil. At a depth of 15 to 25 inches, the Dekalb soil is 50 to 60 percent sandstone, by volume. The depth to weathered bedrock is 1 to 3 feet. There are a few rills, and in some areas there are a few shallow gullies, but the plow layer is still within the original surface layer. Included in the areas mapped are a few areas in which the surface layer is fine sandy loam. The Lehew soil occupies about 60 percent of the acreage.

These soils have medium runoff, moderate infiltration, and low available moisture capacity. They have a moderately deep root zone and good tilth. Natural fertility is low, and the organic-matter content is also low. Row crops are poorly suited because of medium runoff and the moderately deep root zone. Most pasture grasses and legumes are moderately well suited. Yields of pasture grasses and legumes are average if management is good. Pine grows well. There is a very severe erosion hazard. *Capability unit IVe–3; woodland suitability group 3.*

Lehew-Dekalb gravelly fine sandy clay loams, 10 to 15 percent slopes, severely eroded (LLD3).—These well-

drained soils of the uplands developed in residuum weathered from sandstone and interbedded shale. Accelerated erosion has removed nearly all of the original surface layer. There are numerous shallow gullies and a few deep gullies. The present surface layer, which consists largely of subsoil material, is yellowish-red to reddish-brown gravelly fine sandy clay loam. The Lehew soil has a reddish-brown, friable gravelly clay loam subsoil, and the Dekalb soil has a yellowish-brown, friable sandy clay loam subsoil. The depth to weathered sandstone and shale is 15 to 30 inches. The Lehew soil occupies about 55 percent of the acreage.

These soils have moderate infiltration and rapid runoff. They have a shallow root zone and low available moisture capacity. Natural fertility is low, and the organic-matter content is also low. Because of previous erosion and very strong slopes, these soils are poorly suited to row crops and to pasture grasses. About half of the acreage is used for pasture, and the rest is wooded. Pine grows well. *Capability unit VIIe–3; woodland suitability group 4.*

Lehew-Ramsey gravelly fine sandy loams, 15 to 25 percent slopes (LaE).—These well-drained soils of the uplands developed in residuum weathered from sandstone and interbedded shale. The soil pattern is not uniform, and in many places it changes within a few feet. The Lehew soil has a reddish-brown or yellowish-red, friable gravelly clay loam subsoil, and the Ramsey soil has a yellowish-brown, friable gravelly loam subsoil. In most places the root zone of the Lehew soil is thicker than that of the Ramsey soil. The Lehew soil occupies about 80 percent of the acreage.

The major horizons of Ramsey gravelly fine sandy loam are—

0 to 5 inches, brown, very friable gravelly fine sandy loam.
5 to 10 inches, yellowish-brown, friable gravelly loam; weak, fine, subangular blocky structure.
10 to 40 inches +, brownish-yellow and light-gray, slightly weathered sandstone.

A description of the major horizons of a representative Lehew soil is included in the description of Lehew-Dekalb gravelly fine sandy loams, 10 to 15 percent slopes.

Runoff is rapid, the available moisture capacity is low, natural fertility is low, and the organic-matter content is moderate. Most of the acreage is forested; only about 15 percent is used for pasture. These soils are poorly suited to row crops and to pasture. Pine grows well. The erosion hazard is very severe. *Capability unit VIIe–3; woodland suitability group 5.*

Lehew-Ramsey gravelly fine sandy loams, 25 to 60 percent slopes (LaF).—These well-drained soils of the uplands developed in residuum weathered from sandstone and interbedded shale. The surface layer is dark grayish-brown or brown gravelly fine sandy loam. The Lehew soil has a reddish-brown, friable gravelly clay loam subsoil, and the Ramsey soil has a yellowish-brown, friable gravelly loam subsoil. The depth to weathered sandstone and shale is from 20 to 26 inches in the Lehew soil and from 8 to 20 inches in the Ramsey soil. The Lehew soil occupies about 80 percent of the acreage.

Infiltration is moderately slow, runoff is rapid, the available moisture capacity is low, and natural fertility is low. These soils are poorly suited to cultivated crops or to pasture because of the very steep slopes, shallow root zone, and low available moisture capacity. Average yields of pine can be expected from properly managed stands. There is a very severe erosion hazard because of the steep slopes and rapid runoff. *Capability unit VIIe–3; woodland suitability group 5.*

Lehew-Ramsey gravelly fine sandy clay loams, 15 to 25 percent slopes, severely eroded (LhE3).—These well-drained soils of the uplands developed in residuum weathered from sandstone and interbedded shale. Accelerated erosion has removed nearly all of the original surface layer, and numerous shallow gullies and a few deep gullies have formed. The present surface layer, which consists largely of subsoil material, is yellowish-red to reddish-brown gravelly fine sandy clay loam. The Lehew soil has a reddish-brown, friable gravelly clay loam subsoil, and the Ramsey soil has a yellowish-brown, friable gravelly loam subsoil. The depth to weathered sandstone and shale is 15 to 20 inches. The Lehew soil occupies about 75 percent of the acreage.

These soils have very rapid surface runoff, a shallow root zone, and low available moisture capacity. They are not suited to cultivated crops or to pasture grasses. More than 80 percent of the acreage is wooded, and this is the best use for these soils. Loblolly pine and Virginia pine are the fastest growing species. The erosion hazard is very severe. *Capability unit VIIe–3; woodland suitability group 5.*

Local Alluvial Land, Moderately Wet (Led)

This miscellaneous land type consists of moderately well drained, dark-colored recent alluvium that is underlain by somewhat poorly drained, finer textured material. The slopes range from 0 to 2 percent. The areas are seldom flooded but frequently receive runoff and sediments from surrounding uplands. The alluvium is variable. The major horizons of one of the more common profiles are—

0 to 15 inches, dark reddish-brown, friable very fine sandy loam and silt loam.
15 to 26 inches, stratified light olive-brown, dark reddish-brown, and pale-yellow very fine sandy loam.
26 to 50 inches +, pale-yellow and light olive-brown, firm clay loam mottled with light gray; weak, fine, subangular blocky structure.

Most areas are underlain at a depth of 5 to 8 feet by limestone. The depth to mottling is 8 inches or more. The surface layer is very fine sandy loam, silt loam, silty clay loam, or loam. Included in the areas mapped are a few areas that are somewhat poorly drained.

Infiltration is moderate to moderately rapid, runoff is slow, and the available moisture capacity is high. Natural fertility is moderate, and the organic-matter content is moderate. There is a slight to moderate hazard of wetness. Diversions are needed in some areas to intercept runoff from higher areas. The soils are easy to work except during wet periods, when the water table is near the surface. They are suited to crops that need a long growing season, and they can be used intensively for corn, grain sorghum, and small grain. A deep-rooted crop, such as alfalfa, is not well suited, because of the high water table. *Capability unit IIw–1; woodland suitability group 7.*

Locust Series

The Locust series consists of moderately well drained soils that have a fragipan. These soils developed in old local alluvium, on foot slopes and fans adjacent to Horn

and Chestnut Mountains. The surface layer is grayish-brown gravelly fine sandy loam. It is underlain by yellowish-brown to brownish-yellow sandy clay loam. A mottled brownish-yellow fragipan, 4 to 6 inches thick, is at a depth of 16 to 24 inches. Weathered shale is at a depth of 4 to 7 feet. These soils are very strongly acid and are moderately low in natural fertility and low in organic-matter content. They are moderately permeable in the upper part of the profile and slowly permeable in the fragipan and in the lower part of the profile. The slopes range from 2 to 6 percent.

The Locust soils are near the Sequatchie, Jefferson, Monongahela, and Tyler soils. They are less well drained than the Sequatchie and Jefferson soils, which do not have a distinct fragipan. Their profile is somewhat similar to that of the Monongahela soils, but they are on foot slopes and fans instead of stream terraces.

The Locust soils are of minor extent. They occur in the western part of the county. The native vegetation consisted of hardwoods and some scattered shortleaf pine and loblolly pine. About 50 percent of the acreage is used for pasture and cultivated crops; the rest is wooded.

Locust gravelly fine sandy loam, 2 to 6 percent slopes (LKB).—This is a moderately well drained soil that developed in old local alluvium, on foot slopes and fans. The major horizons are—

0 to 9 inches, grayish-brown, very friable gravelly fine sandy loam, grading to light yellowish brown in the lower half.
9 to 19 inches, brownish-yellow to yellowish-brown, friable to firm sandy clay loam; gravelly in lower part.
19 to 24 inches, mottled brownish-yellow and pale-brown gravelly sandy clay loam (fragipan); firm when moist, hard and brittle when dry.
24 to 48 inches, mottled yellowish-brown, gray, and pale-brown, firm to very firm gravelly clay loam in upper part and silty clay in lower part; weak, fine, subangular blocky structure.

The surface layer ranges from 8 to 12 inches in thickness. In cultivated fields the plow layer is light yellowish brown, and in some places there are a few rills. The subsoil is brownish yellow to light olive brown. Slightly weathered shale is at a depth of 50 to 84 inches. Included in the areas mapped are some small areas in which the surface layer is fine sandy loam or loam. The depth to the fragipan is 16 to 24 inches.

This soil has moderate infiltration, slow runoff, and low available moisture capacity. It has a moderately deep root zone and is suited to a medium range of locally grown crops and pasture grasses. Natural fertility is moderately low, and the organic-matter content is moderately low. The response to management, especially to fertilization, is moderate. There is a slight to moderate erosion hazard and a slight water hazard because of the fragipan and the slopes. *Capability unit IIe–2; woodland suitability group 3.*

Melvin Series

The Melvin series consists of poorly drained soils on low flood plains that are frequently covered by fresh deposits of silt. These soils are developing in general alluvium washed from soils underlain by limestone and, to a small extent, by shale. The surface layer is mottled olive silt loam and is underlain by highly mottled gray silt loam over olive-gray cherty clay loam. The alluvium is 4 to 10 feet thick over limestone or shale. These soils are very strongly acid in the surface layer but are more alkaline with depth. They are moderate in natural fertility and moderate in organic-matter content. Permeability is moderately slow in the subsoil. The slopes range from 0 to 2 percent.

The Melvin soils are near the Huntington and Robertsville soils. They are more poorly drained and grayer than the Huntington soils. In color they are similar to the Robertsville soils, but they have less clay in the subsoil and occur on flood plains. They also lack the fragipan of Robertsville soils.

The Melvin soils occur in small bands along creeks in the central part of the county. The native vegetation consisted mainly of hardwoods that included a high proportion of water-tolerant trees. About 50 percent of the acreage is used for pasture, 33 percent is forested, and the rest is cultivated or idle.

Melvin silt loam (0 to 2 percent slopes) (Mel).—This mottled, wet soil is on flood plains. It is subject to frequent flooding and to fresh deposits of silt and sand. The major horizons are—

0 to 12 inches, olive, friable silt loam mottled with yellowish brown and black; upper 2 inches is dark grayish brown.
12 to 22 inches, gray, friable silt loam mottled with light olive brown.
22 to 36 inches, olive-gray, firm cherty clay loam; 30 percent chert, by volume; slightly acid.
36 to 50 inches +, light-gray to gray, friable cherty loam.

The surface layer ranges from mottled dark brown to olive in color. The mottles vary in size, color, and abundance. The depth to limestone or shale is 4 to 10 feet. Included in the areas mapped are a few small areas in which the surface layer is silty clay loam or fine sandy loam.

Infiltration is moderate, and runoff is very slow. Permeability is moderately slow in the subsoil. Although the water table is at or near the surface during prolonged rainy periods, the available moisture capacity is moderate. Natural fertility is moderate, and the organic-matter content is also moderate. The root zone is deep when the water table is lowered. Tilth is fair. This soil is suited to only a narrow range of crops. Most of the acreage is used for unimproved pasture. A small acreage is used mainly for corn and grain sorghum. Yields of corn are low, and failures are common. This soil can be drained if suitable outlets are available. If drained, it is suited to summer pasture. *Capability unit IVw–3; woodland suitability group 8.*

Monongahela Series

The Monongahela series consists of moderately well drained soils on old stream terraces, alluvial fans, and benches. These soils developed in material washed from soils underlain by shale and sandstone. The surface layer is dark grayish-brown fine sandy loam and gravelly silt loam. The subsoil is yellowish-brown clay loam. A slightly brittle compact layer, or fragipan, occurs at a depth of 20 to 36 inches. Shale or limestone is at a depth of 6 to 10 feet. These soils are very strongly acid and are low in natural fertility. Permeability is moderately slow. The slopes range from 2 to 10 percent.

The Monongahela soils are in areas of Waynesboro, Sequatchie, Purdy, and Tyler soils. They have a fragipan and are more yellow than the Waynesboro and Sequatchie soils, which lack a fragipan. They are better drained, browner, and less mottled than the Tyler and Purdy soils.

The Monongahela soils occur along the Conasauga, Coosawattee, and Oostanaula Rivers and along some of the larger creeks. A few areas are flooded occasionally, but most areas are 10 to 100 feet above the present flood plain. The native vegetation consisted mainly of oak, hickory, poplar, dogwood, and gum but included a little shortleaf pine and loblolly pine. About 70 percent of the acreage is used for cotton and corn, 15 percent is used for pasture, and 15 percent is wooded. Shallow-rooted crops are best suited.

Monongahela fine sandy loam, 2 to 6 percent slopes (MaB).—This is a moderately well drained soil on stream terraces. The fragipan slows the movement of air and water and restricts the growth of roots. The major horizons are—

0 to 10 inches, dark grayish-brown, very friable fine sandy loam; lower few inches are brown loam.
10 to 23 inches, yellowish-brown, firm clay loam; strong, fine, subangular blocky structure.
23 to 30 inches, variegated light yellowish-brown, yellowish-brown, and strong-brown, firm gravelly clay loam (fragipan); slightly brittle and compact when dry.
30 to 48 inches +, variegated yellowish-brown, yellowish-red, and pale-brown, very firm to firm silty clay loam; weak, very fine, subangular blocky structure.

The surface layer is dark grayish brown to light olive brown. The subsoil is yellowish-brown to olive-brown silty clay loam or clay loam. In a few small scattered areas, gravel makes up about 5 percent of the soil material, by volume. In some areas there are rills and thin spots caused by erosion. The fragipan is from 6 to 12 inches thick and occurs at a depth of 20 to 30 inches. The depth to shale or limestone ranges from 6 to 10 feet. A few small well-drained areas without a fragipan are included in the areas mapped.

Infiltration is moderate, the available moisture capacity is low, and surface runoff is slow. Natural fertility is low, and the organic-matter content is also low. Tilth is good, and the root zone is moderately deep. This soil responds to good management and is suited to a medium range of locally grown crops. It can be used for cotton and corn but is poorly suited to alfalfa and other deep-rooted crops because of the fragipan. There is a slight to moderate erosion hazard because of the slopes, and a slight hazard of wetness because of the fragipan. *Capability unit IIe–2; woodland suitability group 3.*

Mono gahela fine sandy loam, 6 to 10 percent slopes (MaC).—This is a moderately well drained soil that developed in old general alluvium on low rolling hills. The surface layer of light olive-brown to light-gray fine sandy loam is underlain by light olive-brown to yellowish-brown clay loam, fine sandy clay loam, or silty clay loam. A weak to moderately well developed fragipan is at a depth of 20 to 36 inches. The fragipan is about 4 to 10 inches thick and is gravelly, hard, brittle, mottled clay loam or silt loam. A few rills and thin spots are evidence of slight erosion. Included in the areas mapped are some small areas of well-drained soils that lack a fragipan. These soils make up less than 15 percent of a mapping unit.

Infiltration is moderate, and runoff is medium. The erosion hazard is moderate to severe. The available moisture capacity is low, natural fertility is low, and the organic-matter content is low. This soil has good tilth and is suited to a medium range of locally grown crops and grasses, but it is best suited to shallow-rooted or moderately deep rooted crops because of the fragipan. It responds to good management, especially to fertilization. *Capability unit IIIe–2; woodland suitability group 3.*

Monongahela gravelly silt loam, 2 to 6 percent slopes (MbB).—This is a moderately well drained soil on low, undulating hills, near rivers and creeks. Most of the acreage has been cultivated, but the present plow layer is still within the original surface layer. The surface layer is pale-olive, light olive-brown, or light brownish-gray gravelly silt loam. It is underlain by light yellowish-brown or brownish-yellow gravelly clay loam or gravelly silty clay loam. Gravel makes up from 15 to 25 percent of the soil material. The fragipan is 4 to 10 inches thick and occurs at a depth of 20 to 36 inches.

Infiltration is moderate, runoff is slow, and the available moisture capacity is low. Tilth is poor because of the high content of gravel. Natural fertility is low, and the organic-matter content is low. This soil is suited to a moderate range of crops and grasses, but both tillage and mowing are difficult. The erosion hazard is slight to moderate. *Capability unit IIe–2; woodland suitability group 3.*

Montevallo Series

The Montevallo series consists of soils that have a thin subsoil. These soils developed in residuum weathered chiefly from acid shale. The uplands on which these soils formed are characterized by numerous shallow draws, irregularly shaped hills, and intermittent streams. The surface layer of brown shaly silt loam is underlain by yellowish-brown shaly silty clay loam. Shale makes up 50 percent or more of the subsoil material. The depth to shale is 8 to 20 inches. These soils are very strongly acid. They are low in organic-matter content and low in natural fertility. Permeability is moderately rapid. The slopes range from 2 to 85 percent.

The Montevallo soils commonly are adjacent to the Klinesville, Dekalb, Lehew, Ramsey, Rarden, or Sequoia soils. They have a yellowish-brown profile, whereas the Klinesville soils have a yellowish-red profile. They have a shaly silt loam surface layer, whereas the Dekalb, Lehew, and Ramsey soils have a gravelly fine sandy loam surface layer. They have less clay and more shale in the subsoil than the Rarden and Sequoia soils.

The Montevallo soils are the most extensive soils in the county. They occur throughout the county, but most of the acreage is east of U.S. Highway No. 41. The native vegetation consisted mainly of hardwoods. These soils are droughty and are suited to only a narrow range of crops. Some areas that were cultivated have reverted to trees, and about 90 percent of the acreage is now forested. Where these soils have slopes of more than 10 percent, they commonly are mapped in complexes with the Klinesville soils.

Montevallo shaly silt loam, 2 to 6 percent slopes (MdB).—This well-drained soil occurs in small areas on gently sloping hilltops. The surface layer is brown to dark grayish-brown shaly silt loam and is 4 to 6 inches thick. It is underlain by 8 to 14 inches of yellowish-brown to strong-brown shaly silty clay loam, silty clay loam, or silt loam. There are a few thin spots and shallow gullies, but in most places the plow layer is within the original surface layer. Soft shale is at a depth of about 12 to 20 inches. Included in the areas mapped are a few areas in which the surface layer is fine sandy loam, gravelly fine sandy loam, or silt loam.

All of the acreage has been cultivated, but about 50 percent has reverted to trees. Cotton was the principal crop, but now small grain, corn, and pasture plants are also commonly grown. There is a moderate to severe erosion hazard. Runoff is medium, infiltration is moderately rapid, and the available moisture capacity is low. Natural fertility is low, and the organic-matter content is also low. Tilth is fair. This soil is suited to only a narrow range of crops, because of the shallow root zone. *Capability unit IIIe–6; woodland suitability group 10.*

Montevallo shaly silt loam, 6 to 10 percent slopes (MdC).—This well-drained soil is on low hilltops and adjacent slopes. The surface layer is brown to dark grayish-brown shaly silt loam that contains various amounts of shale. It is underlain by 8 to 14 inches of yellowish-brown or strong-brown shaly silty clay loam, silty clay loam, or silt loam. There are a few thin spots, but in most places the plow layer is within the original surface layer. The depth to weathered shale is 12 to 20 inches. Included in the areas mapped are a few small areas in which the surface layer is fine sandy loam or silt loam and a few areas in which the subsoil is yellowish red.

Infiltration is moderately rapid, runoff is medium, and the available moisture capacity is low. Natural fertility is low, and the organic-matter content is also low. Fair tilth is easily maintained. This soil is suited to only a narrow range of crops because of the shallow root zone. The erosion hazard is very severe because of the slopes. *Capability unit IVe–3; woodland suitability group 10.*

Montevallo-Klinesville shaly silt loams, 15 to 25 percent slopes (McE).—These are well-drained soils of the uplands. In the Montevallo soil, the subsoil is commonly yellowish brown. In the Klinesville soil, it generally is yellowish red. Generally, the Klinesville soil developed in residuum weathered from red, yellowish-red, and weak-red shale. The Montevallo soil makes up about 75 percent of this mapping unit, but there is no uniformity in soil pattern or in the proportion of each soil from one area to another.

The major horizons of Montevallo shaly silt loam are—

0 to 5 inches, brown, friable shaly silt loam.
5 to 10 inches, yellowish-brown, friable shaly silty clay loam; weak, fine, subangular blocky structure.
10 to 60 inches +, gray, olive-gray, and olive-brown shale.

The surface layer ranges from 3 to 6 inches in thickness and from olive to brown in color. The 5- to 10-inch layer ranges from light olive brown to brown or strong brown in color. In some areas it is shaly silt loam or shaly loam. It is from 50 to 70 percent shale fragments, by volume. The depth to shale is 8 to 15 inches.

The major horizons of Klinesville shaly silt loam are—

0 to 4 inches, dark grayish-brown, very friable shaly silt loam.
4 to 11 inches, yellowish-red, friable shaly silty clay loam; weak, fine, subangular blocky structure.
11 to 20 inches +, weak-red, slightly weathered shale.

The surface layer ranges from very dark grayish brown to dark reddish gray in color. The 4- to 11-inch layer ranges from yellowish red to red in color, and in some areas it is shaly silt loam in texture. The shale content varies from 50 to 75 percent by volume. The depth to shale is 8 to 15 inches.

These soils have rapid surface runoff and moderately rapid infiltration, but they are low in available moisture capacity because of the thin, shaly profile. Natural fertility is low, and the organic-matter content is also low. Row crops are poorly suited because of the moderately steep slopes. The variety of pasture grasses and legumes that can be grown successfully is limited because of the shallow root zone. These soils will produce moderate yields of pasture grasses, provided management is good. *Capability unit VIIe–3; woodland suitability group 10.*

Montevallo-Klinesville shaly silt loams, 10 to 15 percent slopes (McD).—This complex consists of well-drained soils on low hills and ridges. About 70 percent is Montevallo soil, and the rest is Klinesville soil. In both soils, the surface layer is olive to brown shaly silt loam and the subsoil is shaly silty clay loam that in places ranges to shaly silt loam. In the Montevallo soil, the subsoil is yellowish brown and in the Klinesville soils, the subsoil is yellowish red to red. The depth to soft shale is 10 to 18 inches. In most places the plow layer is within the original surface layer. There are a few rills, but there are no gullies.

Water infiltrates at a moderately rapid rate, but the thin, shaly solum absorbs only a small amount. Natural fertility is low, and the organic-matter content is also low. About 10 percent of the acreage is used for pasture and cultivated crops; the rest is forested. These soils are poorly suited to crops. If adequately fertilized and otherwise well managed, pastures produce fair yields of drought-resistant plants. The erosion hazard is very severe because of the strong slopes, rapid runoff, and shallow root zone. *Capability unit VIe–3; woodland suitability group 10.*

Montevallo-Klinesville shaly silt loams, 25 to 60 percent slopes (McF).—This complex consists of very shaly soils on steep hills and mountain slopes. About 80 percent is Montevallo soil, and the rest is Klinesville soil. In both soils the surface layer of brown, yellowish-brown, or olive shaly silt loam is underlain by 4 to 10 inches of light shaly silty clay loam or shaly silt loam. In the Montevallo soil, the subsoil is yellowish brown, whereas in the Klinesville soil it is yellowish red. Shale makes up from 60 to 75 percent of the soil material, by volume. Soft, slightly weathered shale occurs at a depth of 8 to 15 inches. There is no evidence of accelerated erosion.

The erosion hazard is very severe because of the shallow, shaly root zone and the steep slopes. Runoff is rapid, infiltration is moderate, and the available moisture capacity is low. Natural fertility is low or very low, and the organic-matter content is low. All of the acreage is forested. The dominant vegetation is hardwoods, but

pine will produce higher economic returns. *Capability unit VIIe–3; woodland suitability group 10.*

Montevallo-Klinesville shaly silt loams, 6 to 10 percent slopes, severely eroded (McC3).—This complex consists of well-drained soils on low hilltops and adjacent slopes. About 60 percent is Montevallo soil, and the rest is Klinesville soil. In the Montevallo soil, the subsoil is yellowish-brown shaly silty clay loam. In the Klinesville soil, the surface layer is strong-brown to yellowish-red shaly silt loam, and the subsoil is yellowish-red shaly silty clay loam. Accelerated erosion has removed most of the original surface layer, and the present plow layer consists mostly of subsoil material. Shallow gullies are common. Soft, slightly weathered shale is at a depth of 10 to 15 inches.

These soils have medium surface runoff and moderately rapid infiltration, but they are so thin that their capacity to store and to supply moisture is low. They are low in natural fertility and low in organic-matter content. Because of the very severe erosion hazard and the shallow root zone, they are poorly suited to crops. They produce fair yields of pasture grasses if they are well fertilized and protected from overgrazing and if drought-resistant plants are grown. Fescue is one of the better suited grasses. *Capability unit VIe–3; woodland suitability group 10.*

Montevallo-Klinesville shaly silt loams, 10 to 15 percent slopes, severely eroded (McD3).—This complex consists of thin shaly soils on hillsides. Water has removed most of the original surface layer and cut many shallow gullies. About 65 percent of this complex is Montevallo soil, and the rest is Klinesville soil. Both soils have a yellowish-brown to yellowish-red surface layer, which consists mostly of subsoil material. The subsoil is shaly silty clay loam and is 5 to 7 inches thick. In the Montevallo soil, the subsoil is yellowish brown. In the Klinesville soil, it is yellowish red. The depth to soft shale is 8 to 12 inches.

Water moves into these soils at a moderate rate, but the thin shaly subsoil absorbs only a small amount. Natural fertility is low, and the organic-matter content is low. Runoff is rapid, and the hazard of erosion is very severe. About 97 percent of the acreage is forested. The rest is used for pasture. These soils are too shallow and too severely eroded to be used for row crops or pasture grasses. Virginia pine and loblolly pine are well suited. *Capability unit VIIe–3; woodland suitability group 10.*

Montevallo-Klinesville shaly silt loams, 15 to 25 percent slopes, severely eroded (McE3).—This complex consists of shaly soils on hillsides. Water has removed most of the original surface layer and cut many shallow gullies. The present surface layer consists mostly of subsoil material. About 75 percent of this complex is Montevallo soil; the rest is Klinesville soil. In both soils the yellowish-brown to brown surface layer is underlain by shaly silty clay loam. Shale makes up from 20 to 35 percent of the surface layer and from 50 to 70 percent of the subsoil. Soft weathered shale is at a depth of 8 to 12 inches.

These soils have rapid surface runoff and moderate infiltration. They have very low available moisture capacity because of the shallow, shaly root zone. They are not suited to cultivated crops or to pasture, because of the very severe erosion hazard. Virginia pine and loblolly pine are well suited. *Capability unit VIIe–3; woodland suitability group 10.*

Montevallo slaty silt loam, 60 to 85 percent slopes (MfG).—This is a very steep soil of the mountains. The major horizons are—

0 to 9 inches, very dark grayish-brown, very friable slaty silt loam that is dark yellowish brown in the lower part; 35 percent slate fragments, by volume.
9 to 16 inches, dark yellowish-brown, very friable, very flaggy silt loam; 50 to 70 percent slate fragments, by volume.
16 inches +, very dark gray slate.

In most places this soil is flaggy to stony. The subsoil is slaty to stony silt loam in texture and dark yellowish brown to olive brown in color. The texture and color of this soil are about the same throughout the profile. The depth to slate is 9 to 20 inches.

This soil has very rapid runoff, moderate infiltration, and low available moisture capacity. It is low in natural fertility but high in organic-matter content. It is poorly suited to trees because of the very steep slopes and shallow root zone. Logging is very difficult or, in places, impossible. *Capability unit VIIs–1; woodland suitability group 5.*

Montevallo slaty silt loam, 25 to 60 percent slopes (MfF).—This very steep soil of the mountains is developing in residuum weathered from slate and shale. The surface layer is very dark grayish-brown, very friable slaty silt loam. It is underlain by dark yellowish-brown to olive-brown, very flaggy silt loam. The color and texture are fairly uniform throughout the profile. The depth to bedrock ranges from 10 to 25 inches.

This soil is excessively drained. It has low available moisture capacity, very rapid runoff, and moderate infiltration. Natural fertility is low, and the organic-matter content is high. The root zone is shallow. Erosion is a very severe hazard but is not the dominant hazard. This soil is forested with hardwoods and some scattered pine and should remain in forest. Logging is difficult. *Capability unit VIIs–1; woodland suitability group 5.*

Muse Series

The Muse series consists of well-drained soils that developed in old local alluvium on toe slopes and fans. The alluvium washed from soils underlain by shale and, to a minor extent, by limestone or cherty limestone. The surface layer is dark-brown silt loam, and the subsoil is yellowish-red silty clay loam. Shale or limestone is at a depth of 4 to 8 feet. These soils are moderately permeable and are very strongly acid. They are moderate in fertility and are low in organic-matter content. The slopes range from 2 to 10 percent.

The Muse soils are downslope from the Rarden, Sequoia, Farragut, and Montevallo soils. They are at higher elevations than the Leadvale soils. They are deeper than the Montevallo soils and are better drained than the Leadvale soils, which have a fragipan. They generally are more friable than the Rarden and Sequoia soils. Their subsoil is less red and contains less clay than that of the Farragut soils.

The Muse soils are widely scattered throughout the county, but they occupy only a moderate total acreage. About 46 percent of the acreage is cultivated, 37 percent is pastured, 10 percent is forested, and the rest is idle.

The native vegetation consisted of oak, hickory, ash, elm, dogwood, maple, and gum. Now, pine covers most of the forested areas. These soils are suited to a wide range of locally grown crops.

Muse silt loam, 2 to 6 percent slopes, eroded (MeB2).—This is a well-drained soil that developed in old local alluvium. It occurs on foot slopes, adjacent to soils that are underlain by shale. The major horizons are—

0 to 6 inches, dark-brown, very friable silt loam.
6 to 12 inches, dark-brown to brown, firm silty clay loam; weak, fine, subangular blocky structure.
12 to 51 inches +, yellowish-red, firm silty clay loam; weak, fine, subangular blocky structure; lower part is strong brown.

The surface layer is dark reddish brown in areas that are adjacent to red soils and ranges to light yellowish brown in areas that are adjacent to light-colored soils. The shaly silt loams are adjacent to the Montevallo soils, and the silty clay loams are downslope from areas of severely eroded Farragut and Rarden soils. The subsoil is red to strong-brown silty clay loam to silty clay, and in places it contains a few small, dark reddish-brown concretions. Chert fragments occur on the surface in a few areas, and there are some scattered outcrops of limestone. Shallow gullies occur in most areas, but the plow layer is still within the original surface layer. Included in the areas mapped are a few areas in which the surface layer is shaly silt loam or silty clay loam.

This soil has medium runoff, moderate infiltration, and moderate permeability. It has a deep root zone but only moderate available moisture capacity. It has fair tilth, which can be maintained by good management. There is a slight to moderate erosion hazard. Only a few areas need terraces, but some areas need diversion ditches. All of the acreage has been cleared, and most of the acreage is used for row crops or pasture. Corn, cotton, and hay are the principal crops, but this soil can be used for all locally grown crops. *Capability unit IIe–3; woodland suitability group 1.*

Muse silt loam, 2 to 6 percent slopes (MeB).—This is a well-drained soil that developed in old alluvium washed from soils derived from shale and limestone. The surface layer is dark-brown to light yellowish-brown silt loam and is 8 to 10 inches thick. The subsoil is yellowish-red to strong-brown, firm silty clay loam to silty clay. Some areas adjacent to the Montevallo soils have a shaly silt loam surface layer. About 100 acres with slopes of less than 2 percent were included in the areas mapped. In a few areas there are scattered outcrops of limestone.

This soil has medium runoff, moderate infiltration, and moderate permeability. It has a deep root zone but only moderate available moisture capacity. The organic-matter content is low, and tilth is fair. Natural fertility is moderately low. The hazard of erosion is slight to moderate because of the position of this soil on the landscape and the nearly level to gentle slopes. Only a few areas need terracing, but some areas need the protection of diversion ditches. All of the acreage has been cleared, and most of it is used for row crops or pasture. Corn, cotton, small grain, and hay are the principal crops, but this soil is suited to all locally grown crops. *Capability unit IIe–3; woodland suitability group 1.*

Muse silt loam, 6 to 10 percent slopes, eroded (MeC2).—This well-drained soil occurs on toe slopes at the foot of shale ridges. It developed in old local alluvium washed from the Montevallo, Farragut, Sequoia, Rarden, and other similar soils. Erosion has removed most of the original surface layer. The present surface layer of dark-brown to light yellowish-brown silt loam is a mixture of the original surface layer and the upper part of the former subsoil. In some areas the plow layer consists entirely of the former subsoil. The subsoil is yellowish-red to strong-brown silty clay loam to silty clay. Shallow gullies and rills have formed in most areas. Included in the areas mapped are a few small areas in which the surface layer is shaly silt loam.

This soil has medium runoff, moderate infiltration, and moderate permeability. It has a deep root zone but only moderate available moisture capacity. Natural fertility is moderately low, the organic-matter content is moderately low, and tilth is fair. Fair tilth can be maintained with good management practices. There is a moderate to severe erosion hazard. Most areas are too narrow to be terraced, but some areas can be protected by diversion ditches.

This soil has been cleared of trees. It is suited to a wide range of crops but is used mainly for corn, cotton, hay, or pasture. *Capability unit IIIe–3; woodland suitability group 1.*

Nolichucky Series

The Nolichucky series consists of well-drained soils on high stream terraces. These soils developed in old alluvium washed from soils underlain by sandstone and shale and, to a minor extent, by schist and gneiss. The surface layer is brown fine sandy loam. The subsoil is mottled yellowish-red fine sandy clay loam. These soils are 4 to 7 feet thick over weathered shale. They are very strongly acid. Permeability is moderately rapid in the surface layer and moderate in the subsoil. Natural fertility is moderate, and the organic-matter content is moderate. The slopes range from 2 to 15 percent.

The Nolichucky soils are near the Waynesboro, Monongahela, and Sequatchie soils. The mottling in the subsoil begins nearer the surface in Nolichucky soils than in Waynesboro soils. The Nolichucky soils lack the fragipan typical of the Monongahela soils and they occur on higher stream terraces and have a redder subsoil than the Sequatchie soils.

The Nolichucky soils are of minor extent in the county. Most of the acreage is along the Conasauga and Oostanaula Rivers. The native vegetation consisted of oak, hickory, elm, maple, beech, and dogwood and a little scattered shortleaf pine and loblolly pine. These soils are suited to a wide range of locally grown crops, but most of the acreage is used for cotton and corn.

Nolichucky fine sandy loam, 2 to 6 percent slopes (NbB).—This is a well-drained soil that developed in old alluvium on terraces. The major horizons are—

0 to 12 inches, brown, very friable fine sandy loam; lower 4 inches is yellowish brown.
12 to 16 inches, strong-brown, firm clay loam; weak, fine, subangular blocky structure.
16 to 35 inches, yellowish-red, firm fine sandy clay loam mottled with yellowish brown; moderate to strong, fine, subangular blocky structure.

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35 to 52 inches +, red, very firm fine sandy clay loam mottled with yellowish brown; strong, fine, subangular blocky structure.

The surface layer is brown to grayish brown. The subsoil ranges from mottled yellowish red to red in color and from fine sandy clay loam to clay loam in texture. In some areas there are numerous cobblestones and considerable rounded quartz and sandstone gravel. The depth to shale is 4 to 7 feet. Included in the areas mapped are a few small areas in which the surface layer is silt loam or gravelly fine sandy loam.

Infiltration is moderately rapid, runoff is moderate, and the available moisture capacity is moderate. Natural fertility is moderate, and the organic-matter content is also moderate. This soil has a deep root zone and good tilth. It is suited to all locally grown crops and is highly productive if adequately fertilized and otherwise well managed. There is a slight to moderate erosion hazard because of the slopes. *Capability unit IIe-3; woodland suitability group 1.*

Nolichucky fine sandy loam, 6 to 10 percent slopes (NbC).—This is a well-drained soil on high stream terraces. It developed in old alluvium washed from soils underlain by shale and sandstone. The surface layer is brown fine sandy loam and is 8 to 10 inches thick. In most areas the plow layer is still within the original surface layer. The subsoil generally is mottled yellowish-red fine sandy clay loam, but in a few areas it is clay loam. The depth to shale is 4 to 6 feet. Included in the areas mapped are a few areas in which the surface layer is gravelly fine sandy loam. In most areas there is a little gravel throughout the profile.

This soil has moderate infiltration, medium runoff, and moderate available moisture capacity. Natural fertility is moderate, and the organic-matter content is also moderate. Good tilth is easily maintained. This soil can be cultivated throughout a wide range of moisture content because of the deep, sandy surface layer. It responds to good management and is well suited to all locally grown crops. The most commonly grown crops are corn, cotton, annual hay crops, and alfalfa. Erosion is a moderate to severe hazard because of the strong slopes. *Capability unit IIIe-3; woodland suitability group 1.*

Nolichucky fine sandy loam, 10 to 15 percent slopes, eroded (NbD2).—This is a well-drained soil on high stream terraces. It developed in old alluvium washed from soils underlain by shale and limestone. The surface layer is brown fine sandy loam and is 4 to 6 inches thick. In most areas the present surface layer is a mixture of original surface soil and subsoil material. The subsoil is mottled yellowish-red fine sandy clay loam or clay loam. Shale is at a depth of 42 to 60 inches. In some areas there are a few shallow gullies and galled spots. Included in the areas mapped are a few areas in which the surface layer is gravelly fine sandy loam. These areas make up about 10 percent of the total acreage of this mapping unit. About 180 acres in which the surface layer is yellowish-brown fine sandy clay loam was also included in mapping. This acreage is in the north-central part of the county.

This soil has moderate infiltration, medium surface runoff, and moderate available moisture capacity. Good tilth is easily maintained. The sandy textured surface layer can be cultivated throughout a wide range of moisture content. Because of the very strong slopes, there is a severe to very severe erosion hazard. This soil is moderate in natural fertility and responds to good management. All locally grown crops are suitable, but good management practices are needed to prevent severe erosion if row crops are grown. *Capability unit IVe-1; woodland suitability group 1.*

Philo Series

The Philo series consists of moderately well drained, very friable soils on flood plains. These soils are developing in recent, mixed alluvium that washed chiefly from soils underlain by sandstone and shale. The surface layer is dark yellowish-brown or brown silt loam. It is underlain by brown, very friable silt loam that has a few light olive-brown mottles. The organic-matter content is moderate, natural fertility is moderate, and the reaction is strongly acid or very strongly acid.

The Philo soils commonly are near the Stendal, Atkins, and Pope soils. They are better drained than the Stendal and Atkins soils and are not so well drained as the Pope soils. They are on small to large flood plains throughout the county and are flooded one or more times annually for a period of 1 to 7 days.

The Philo soils are suited to a medium range of crops and generally produce high yields. Most of the acreage is used for cultivated crops, such as corn. The native vegetation consists of hardwoods and pine. In Gordon County, these soils are mapped in a complex with Stendal soils.

Pope Series

The Pope series consists of well-drained friable soils on level first bottoms or flood plains. These soils developed in alluvium washed mainly from soils underlain by sandstone and shale. In some areas they are influenced by material washed from areas of igneous and metamorphic rocks. The surface layer of dark yellowish-brown fine sandy loam is underlain by yellowish-brown fine sandy loam. Shale is at a depth of 3 to 12 feet. The reaction is very strongly acid, permeability is moderately rapid, natural fertility is moderate, and the organic-matter content is low.

The Pope soils are on flood plains with the Philo, Stendal, and Atkins soils. They are browner throughout and better drained than the moderately well drained Philo soils, the somewhat poorly drained Stendal soils, and the poorly drained Atkins soils. They are more sandy throughout than the Sequatchie, Whitwell, Tyler, and Purdy soils, which are on low terraces, and they are better drained and less mottled than the Whitwell, Tyler, and Purdy soils.

The Pope soils are of moderate extent and are important agriculturally. They occur along the Conasauga, Coosawattee, and Oostanaula Rivers and along Pine Log and Salacoa Creeks. The original vegetation consisted of oak, gum, hickory, and poplar and a little scattered loblolly pine. These soils are suited to a wide range of crops. They are used mainly for cultivated crops.

Pope fine sandy loam (0 to 2 percent slopes) (Pop).—This is a well-drained, friable soil on first bottoms or flood plains. The major horizons are—

0 to 8 inches, dark yellowish-brown, friable fine sandy loam.
8 to 50 inches +, yellowish-brown, friable fine sandy loam.

The surface layer ranges from very dark gray to brown. The substratum ranges from yellowish-brown to brown in color and from fine sandy loam to silt loam in texture. In some areas it is stratified with silt and sand. A few, fine, faint mottles occur below a depth of 30 inches. The alluvium is from 3 to 12 feet thick over shale. Included in the areas mapped are some areas in which the surface layer is silt loam. Also included are a few small areas of moderately well drained to somewhat poorly drained soils.

This soil has good tilth and a deep root zone. Runoff is very slow, permeability is moderately rapid, and infiltration is moderately rapid. Natural fertility is moderate, and the available moisture capacity is high. This soil responds to good management and is suited to a wide range of crops. It can be used intensively but is subject to occasional flooding. Flooding commonly occurs in winter or early in spring and generally does not damage corn and cotton, which are the principal crops. *Capability unit I–3; woodland suitability group 6.*

Pope shaly silt loam, local alluvium (0 to 2 percent slopes) (Pos).—This well-drained soil is developing in alluvium washed from soils underlain chiefly by shale. It occurs in small areas along intermittent streams and at the head of draws. The surface layer of dark yellowish-brown shaly silt loam is underlain by yellowish-brown silt loam and dark yellowish-brown shaly silt loam. Strong-brown, firm silty clay loam occurs at a depth of 18 to 30 inches. Shale and quartz gravel occur throughout the profile. The upper part of the profile is medium acid, and the lower part is very strongly acid. A few spots of moderately well drained soils are included in the areas mapped.

This soil has slow runoff, moderate infiltration, and high available moisture capacity. Natural fertility is moderate, and the organic-matter content is moderate. This soil has a deep root zone and good tilth. It can be cultivated intensively and is suited to all locally grown crops and pasture grasses. High yields can be expected if management is good. There is no hazard of wetness or erosion. *Capability unit I–3; woodland suitability group 6.*

Purdy Series

The Purdy series consists of poorly drained soils on low stream terraces. These soils developed in alluvium washed from soils underlain by sandstone and shale. The surface layer is olive-gray to gray silt loam. The subsoil is distinctly mottled gray, very firm silty clay. Shale is at a depth of 5 to 8 feet. Permeability is moderately slow, natural fertility is low, and the organic-matter content is low. The reaction is very strongly acid to strongly acid. The slopes range from 0 to 2 percent.

The Purdy soils are on stream terraces near the Sequatchie, Whitwell, Tyler, and Monongahela soils. They are more poorly drained than these soils, and they are grayer and finer textured than the Sequatchie and Whitwell soils. They lack the fragipan that is typical of the Tyler and Monongahela soils.

The Purdy soils occur along rivers, creeks, and intermittent drainageways throughout the county. The native vegetation consisted of such deciduous trees as water oak, blackgum, beech, and poplar. Water-tolerant crops are best suited to this soil because water stands on the surface for long periods. Drainage is needed for satisfactory yields of pasture grasses. About 58 percent of the acreage is forested, 16 percent is used for row crops, and 26 percent is pastured.

Purdy silt loam (0 to 2 percent slopes) (Pur).—This is a poorly drained soil on low stream terraces. The major horizons are—

0 to 8 inches, gray, friable silt loam; upper 3 inches are olive gray.
8 to 14 inches, gray, firm silty clay loam; common, medium, distinct, light olive-brown mottles.
14 to 50 inches +, gray, very firm silty clay mottled with olive brown, yellowish brown, and olive yellow; weak, medium, subangular blocky structure in upper part.

The surface layer ranges from gray to olive gray in color, and in some areas it is mottled. The subsoil is mottled gray, olive-gray, or light-gray silty clay loam, silty clay, or clay. The size and color of the mottles vary. Shale is at a depth of 5 to 8 feet. Included in the areas mapped are some areas in which the surface layer is fine sandy loam and a few areas in which there is a claypan. There is a little rounded gravel in some layers.

This soil is low in organic-matter content and low in natural fertility. Its response to management is poor. Runoff is very slow, infiltration is moderately slow, and the available moisture capacity is low. This soil has poor drainage and a clayey subsoil. Consequently, it is poorly suited to cultivation. It is severely limited in its use for crops because of excess water during much of the year. It is suited to such pasture plants as tall fescue, which can tolerate water on the surface for long periods. *Capability unit IVw–3; woodland suitability group 8.*

Ramsey Series

The Ramsey series consists of well-drained soils that are developing in residuum weathered from sandstone that in places is interbedded with shale. These soils commonly are on steep, rocky slopes along the numerous shallow drains. The surface layer is brown gravelly fine sandy loam. The subsoil is yellowish-brown, friable gravelly loam. Slightly weathered sandstone is at a depth of 8 to 20 inches. Natural fertility is low, and the reaction is very strongly acid. The slopes range from 15 to 60 percent.

The Ramsey soils commonly are adjacent to the Lehew and Dekalb soils. They have a thinner and less red subsoil than the Lehew soils, and they resemble the Dekalb in color but are shallower to bedrock.

Most of the acreage is in the western part of the county. Because of their steep slopes and gravelly, droughty nature, the Ramsey soils are unsuited to cultivation. Nearly all of the acreage is wooded; a few small areas are pastured. In Gordon County, all of the acreage is mapped in complexes with the Lehew soils.

Rarden Series

The Rarden series consists of well-drained soils on rolling hills. These soils developed in residuum weathered from shale or from interbedded shale and limestone. The surface layer is brown silt loam. The subsoil is strong-brown to red, extremely firm silty clay. Limestone or shale is at a depth of 16 to 36 inches. The slopes range from 2 to 25 percent but are mostly less than 10 percent. These soils have a moderately slowly permeable subsoil and are very strongly acid. They are moderately low in natural fertility. The organic-matter content is low in cultivated areas and moderate in wooded areas.

The Rarden soils are near the Conasauga, Farragut, Sequoia, and Montevallo soils. They are better drained than the Conasauga soils and have a more clayey subsoil than the Montevallo soils. Weathered shale is nearer the surface in the Rarden soils than in the Farragut and Sequoia soils.

The Rarden soils occur throughout the county. Approximately 50 percent of the acreage is idle or wooded. The rest is used either for cultivated crops or for pasture. The native vegetation consisted chiefly of oak, hickory, elm, and beech. Abandoned fields soon grow up to pine. These soils are droughty because of the clayey subsoil.

Rarden silt loam, 2 to 6 percent slopes, eroded (RmB2).—This well-drained soil of the uplands developed in residuum weathered from shale or shale and limestone. The major horizons are—

0 to 6 inches, brown, friable silt loam; lower 3 inches is light yellowish brown.
6 to 23 inches, strong-brown to red, extremely firm and plastic silty clay; moderate, medium, subangular blocky structure.
23 to 34 inches, light olive-brown, firm shaly silty clay; weak, fine, subangular blocky structure.
34 to 47 inches +, soft, light olive-brown shale.

The surface layer is 3 to 6 inches thick and ranges to light olive brown in color. This soil has eroded to the extent that tillage extends through the present surface layer and into the upper part of the subsoil. The subsoil ranges from silty clay to clay in texture and from strong brown to yellowish red and red in color. The depth to weathered shale or limestone is 20 to 36 inches. A few shale fragments occur throughout most profiles. Galled spots and shallow gullies occur in most areas, and there are some scattered outcrops of limestone. Included in the areas mapped are some small areas in which the surface layer is shaly silt loam and a few areas, in the southwestern part of the county, in which the surface layer is fine sandy loam.

This soil has moderate infiltration, medium runoff, and low available moisture capacity. Tilth is good, but the root zone is shallow. Natural fertility is moderately low, and the organic-matter content is low. This soil tends to be droughty during hot, dry summer months because of the clayey subsoil. It is suited to only a medium range of crops and pasture grasses. About 40 percent of the acreage is wooded, 25 percent is pastured, and the rest is cultivated. There is a moderate to severe erosion hazard because of the slopes. *Capability unit IIIe–4; woodland suitability group 3.*

Rarden silt loam, 2 to 6 percent slopes (RmB).—This is a well-drained soil on low ridgetops and in valleys. The surface layer is dark grayish-brown to dark-brown silt loam. The subsoil is yellowish-red to red silty clay, clay, or shaly silty clay. Soft weathered shale is at a depth of 16 to 36 inches. Included in the areas mapped are some areas in which the surface layer is shaly silt loam. Also included is an area of about 90 acres in the vicinity of Calhoun in which the slope is less than 2 percent.

This soil has good tilth and is easily kept in good tilth. It has moderate infiltration, medium surface runoff, and low available moisture capacity. It has a moderately deep root zone and is suited to a medium range of crops. Deep-rooted crops are not well suited, but in seasons of average rainfall, if management is good, good yields of cotton, grain sorghum, small grain, and pasture grasses can be expected. There is a moderate to severe erosion hazard because of the slopes. *Capability unit IIIe–4; woodland suitability group 3.*

Rarden silt loam, 6 to 10 percent slopes, eroded (RmC2).—This is a well-drained soil that developed in residuum weathered from shale and some interbedded limestone. The 3- to 6-inch surface layer is brown to light yellowish-brown silt loam. In most areas it consists of a mixture of the remaining original surface soil and the upper part of the former subsoil. In a few places the plow layer is entirely within the original surface layer. In most places the subsoil is strong-brown to red silty clay or shaly silty clay. Shale is at a depth of 20 to 30 inches, and fragments of shale occur throughout most profiles. There are a few shallow gullies and galled spots. Small areas in which the surface layer is shaly silt loam were included in the areas mapped. These areas make up less than 15 percent of the mapping unit.

This soil has medium runoff, moderate infiltration, and low available moisture capacity. It is moderately low in natural fertility but responds moderately well to good management. The root zone is moderately deep, and crops are damaged by droughts of 2 to 3 weeks duration. Deep-rooted crops are not suitable, but yields of cotton, grain sorghum, small grain, or pasture grasses are good if management is good. Most of the acreage has been cultivated but has now reverted to pine. About 20 percent is still used for cultivated crops. There is a very severe erosion hazard because of the strong slopes and the clayey subsoil. *Capability unit IVe–5; woodland suitability group 3.*

Rarden silt loam, 10 to 15 percent slopes, eroded (RmD2).—This well-drained soil of the uplands developed in residuum weathered from shale and some interbedded limestone. It is eroded to the extent that tillage has mixed the remaining surface soil and the upper part of the former subsoil. The present surface layer is dark grayish-brown silt loam. The subsoil is strong-brown to red silty clay or shaly silty clay. The depth to soft, weathered shale is 16 to 30 inches. A few shallow gullies have formed, and there are some scattered V-shaped gullies that are from 3 to 5 feet deep. Included in the areas mapped are small areas in which the surface layer is shaly silt loam or shaly silty clay loam. These areas make up less than 12 percent of the mapping unit. A few areas that are underlain by black shale have a dark-gray surface layer.

This soil occurs as small areas on ridges east of U.S. Highway No. 411. It has moderate infiltration, rapid surface runoff, a shallow to moderately deep root zone, and low available moisture capacity. It is low in natural

fertility and low in organic-matter content. It has been used for row crops, but most of the acreage has reverted to pine. It is poorly suited to crops because of the very strong slopes, shallowness, and the very severe erosion hazard. *Capability unit VIe–3; woodland suitability group 3.*

Rarden shaly silty clay loam, shallow, 6 to 10 percent slopes, severely eroded (RnC3).—This is a well-drained soil of the uplands. The surface layer is reddish-brown shaly silty clay loam and is 4 to 6 inches thick. It consists largely of subsoil material. There are numerous shallow gullies and some scattered deep gullies. The subsoil is red silty clay or shaly silty clay. Soft, weathered shale occurs at a depth of 18 to 30 inches.

This soil occurs in small areas east of U.S. Highway No. 411. It is low in natural fertility, low in available moisture capacity, and low in organic-matter content. Infiltration is moderately slow, and surface runoff is medium. A very severe erosion hazard exists because of the clayey surface layer. Most of the acreage has been cultivated, but about 60 percent has reverted to pine. This soil is well suited to a perennial grass, such as tall fescue. Pine also grows well. *Capability unit VIe–3; woodland suitability group 4.*

Rarden shaly silty clay loam, shallow, 10 to 15 percent slopes, severely eroded (RnD3).—This well-drained soil is on ridges east of U.S. Highway No. 411. It developed in residuum weathered from shale. The surface layer is reddish-brown shaly silty clay loam. The subsoil is red shaly silty clay or shaly clay. The depth to soft, weathered, acid shale is 12 to 24 inches. All of the original surface layer and part of the subsoil have been removed by erosion. In most places the plow layer is entirely within the former subsoil. Shallow gullies are numerous, and deep gullies are common.

This soil has a low available moisture capacity, moderately slow infiltration, and rapid surface runoff. It is suited to only a narrow range of pasture grasses. Because of the shallow root zone and rapid runoff, it is best suited to permanent vegetation, such as pasture grasses or pine. If an abundance of chicken litter is applied and the weather is favorable, good yields of corn are produced. Tilth can be improved by additions of large amounts of organic matter. The erosion hazard is very severe because of the very strong slopes and clayey surface layer. *Capability unit VIe–3; woodland suitability group 4.*

Rarden shaly silty clay loam, shallow, 15 to 25 percent slopes, severely eroded (RnE3).—This well-drained soil of the uplands is on ridges east of U.S. Highway No. 411. It developed in residuum weathered from shale. The surface layer is reddish-brown shaly silty clay loam. The subsoil of red shaly clay or shaly silty clay is underlain by weathered shale at a depth of 12 to 24 inches. All of the original surface layer has been removed by erosion. Shallow gullies are numerous, and in most areas there are a few deep gullies.

This soil has low available moisture capacity, moderately slow infiltration, rapid surface runoff, and a shallow root zone. It was cultivated for a short period but has now reverted to pine. Pastures are difficult to maintain because of the moderately steep slopes, eroded uneven surface, and clayey soil. There is a very severe erosion hazard. *Capability unit VIIe–3; woodland suitability group 4.*

Robertsville Series

The Robertsville series consists of poorly drained, mottled, gray soils. These soils occur on low stream terraces and in depressions on the uplands. They developed in old general alluvium washed from soils underlain by limestone and cherty limestone and, to a small extent, by shale. The surface layer is mottled olive-gray silt loam. The subsoil is mottled olive-gray, extremely firm cherty silty clay. Limestone or shale is at a depth of 5 to 10 feet. Chert and gravel increase in quantity with depth. The substratum is very gravelly or cherty. Natural fertility is low, and the organic-matter content is low.

The Robertsville soils are near the somewhat poorly drained Taft soils, the moderately well drained Captina soils, and the well drained Etowah and Cumberland soils. They are grayer and more poorly drained than the Etowah and Cumberland soils. They are more mottled and grayer throughout than the Taft and Captina soils, which have a fragipan.

The Robertsville soils occur in small areas in the central part of the county. They developed under a cover of water-tolerant hardwoods. More than half of the acreage is forested, and the rest is used for pasture and cultivated crops.

Robertsville silt loam, clay subsoil variant (0 to 2 percent slopes) (Rob).—This is a poorly drained soil on low, level stream terraces and in depressions on the uplands. The major horizons are—

0 to 6 inches, olive-gray, friable silt loam; few, fine, distinct brownish-yellow mottles.
6 to 10 inches, gray, firm silty clay loam; many, medium, distinct brownish-yellow mottles.
10 to 35 inches, olive-gray, extremely firm cherty silty clay; distinct brownish-yellow mottles; moderate, medium, subangular blocky structure; 30 to 40 percent chert, by volume.
35 to 45 inches +, gray, extremely firm very cherty clay; common, fine, distinct olive-yellow mottles; 70 percent chert and gravel, by volume.

The surface layer ranges to pale olive and grayish brown in color and generally is mottled. The subsoil is olive gray, light gray, or light brownish gray, mottled with brownish yellow or light olive brown. The mottles vary considerably in abundance and size. A few small areas in which the surface layer is fine sandy loam are included in the areas mapped.

This soil has low natural fertility, low available moisture capacity, moderately slow infiltration, and very slow runoff. In the rainy seasons in winter and in spring, the water table is at or near the surface. The wetness hazard is very severe. This soil is not suited to cultivated crops, but it is suited to a narrow range of pasture grasses. It is well suited to a permanent pasture grass, such as tall fescue. Surface drainage increases the range of suitable crops, but outlets generally are not available. *Capability unit IVw–3; woodland suitability group 8.*

Sandy and Gravelly Land (Spg)

This land type consists of gravelly sandy loams, loams, and sandy clay loams on wide alluvial fans at the foot of Horn and Chestnut Mountains (fig. 5). The fans are dissected by intermittent streams. Most of the acreage

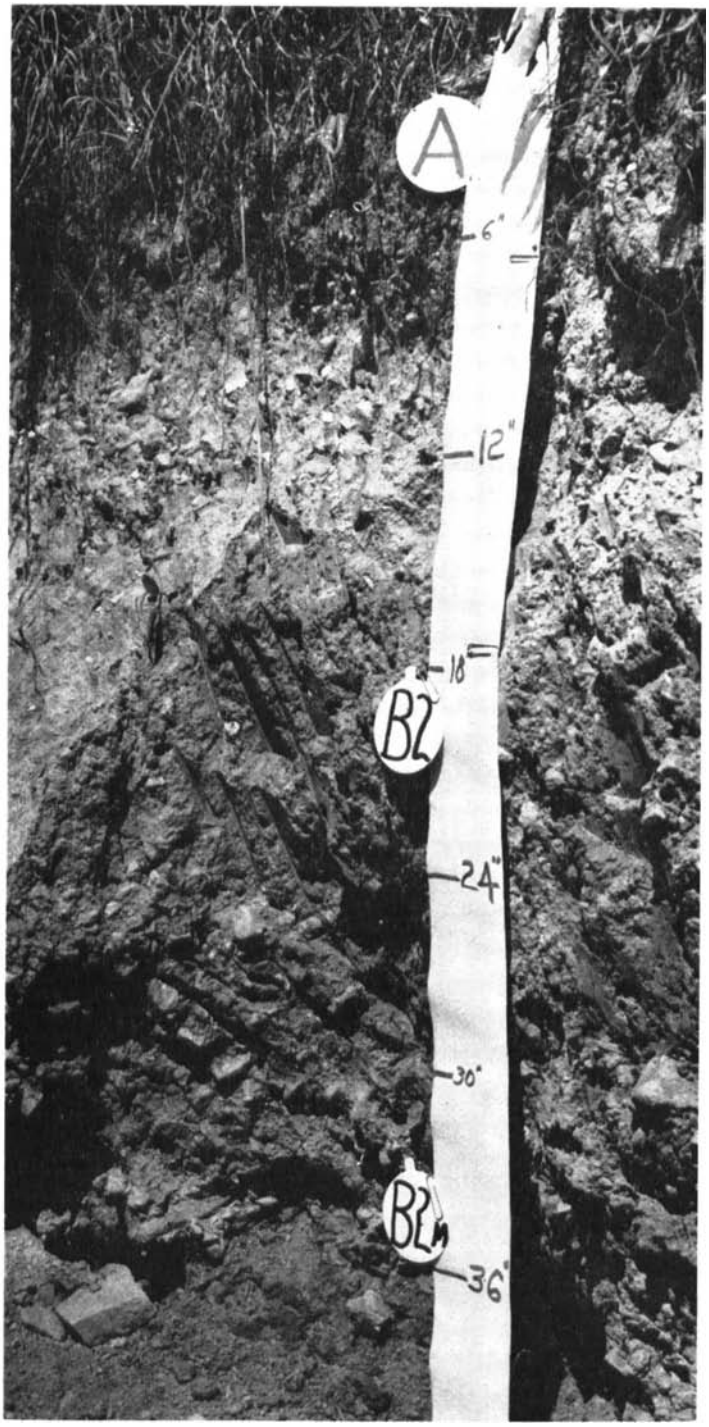

Figure 5.—**Profile of Sandy and gravelly land.**

is moderately well drained, but there are some spots that are well drained and others that are somewhat poorly drained. The surface layer ranges from dark grayish brown to strong brown in color, and the subsoil ranges from yellowish red to yellowish brown. Gravel makes up from 15 to 90 percent of the soil material, by volume. In most areas there is a loose, extremely gravelly layer at a depth of 15 to 30 inches. Generally, a weak fragipan, about 3 inches thick, is directly above this gravelly layer.

Infiltration is very rapid, and runoff is slow. The available moisture capacity is low because of the high content of gravel. The fragipan and the gravelly layer limit the depth of the root zone. Most locally grown shallow-rooted crops are suitable, but tillage and mowing operations are difficult because of the gravel on and in the surface layer. Natural fertility is low to moderately low, and the organic-matter content is also low to moderately low. About 92 percent of the acreage is forested. The rest is used for row crops and pasture. There is a slight to moderate hazard of excess water because of seepage and overflow. *Capability unit IIw-2; woodland suitability group 7.*

Sequatchie Series

The Sequatchie series consists of well-drained, friable soils on low stream terraces. These soils developed in general alluvium washed mainly from soils underlain by sandstone and shale, but in some areas they are influenced by material derived from limestone or from igneous and metamorphic rocks. The alluvium is 5 to 12 feet thick over shale or limestone. The surface layer is dark-brown loam. The subsoil is strong-brown fine sandy clay loam. These soils are strongly acid. They are moderately permeable, moderate in natural fertility, and moderate in organic-matter content. The slopes range from 0 to 6 percent.

The Sequatchie soils are adjacent to the Monongahela, Whitwell, Tyler, and Pope soils and are near the Nolichucky and Waynesboro soils. They are in lower areas and are less red than the Nolichucky and Waynesboro soils. They are browner and better drained than the Monongahela and Tyler soils and lack the fragipan characteristics of those soils. They have a browner subsoil and are better drained than the Whitwell soils. They are older and have more clay in the subsoil than the Pope soils.

The Sequatchie soils occur near the Oostanaula, Conasauga, and Coosawattee Rivers. A few small areas are near the larger creeks. About 90 percent of the acreage is cultivated. The rest is used for pasture or is wooded. The original vegetation consisted mainly of oak, hickory, ash, and blackgum but included a little loblolly pine and shortleaf pine. These soils are used mainly for cotton and corn but are suited to a wide range of crops. They respond to good management, especially to fertilization.

Sequatchie loam, 0 to 2 percent slopes (SaA).—This is a well-drained, friable soil on low stream terraces. The major horizons are—

0 to 9 inches, dark-brown, very friable loam.
9 to 26 inches, strong-brown, friable fine sandy clay loam; moderate, medium, subangular blocky structure.
26 to 48 inches +, strong-brown, firm fine sandy clay loam; few, fine, distinct mottles.

The surface layer is dark grayish brown to dark brown and is 7 to 10 inches thick. The subsoil is strong-brown to yellowish-brown fine sandy clay loam to clay loam. The depth to shale or limestone is 6 to 12 feet. In places mica flakes, a little rounded gravel, or a few black and brown concretions occur throughout the profile. Generally, there is a layer of gravel or sand directly above the shale or limestone. Included in the areas mapped

are some areas in which the surface layer is silt loam or sandy loam.

This soil has good tilth, a deep root zone, moderate organic-matter content, and moderate fertility. Runoff is slow, infiltration is moderately rapid, permeability is moderate, and the available moisture capacity is high. This soil responds well to good management and can be used intensively. It is suited to a wide range of crops. Good management practices will maintain high productivity and preserve good tilth. There is no erosion hazard. *Capability unit I–2; woodland suitability group 1.*

Sequatchie loam, 2 to 6 percent slopes (SaB).—This is a well-drained, friable soil on low stream terraces. It developed in general alluvium washed from soils underlain by sandstone and shale. The surface layer is brown to dark-brown very friable loam. The subsoil is strong-brown to yellowish-brown fine sandy clay loam to clay loam. Mottling begins at a depth of more than 36 inches. In some places rounded gravel and small mica flakes occur in the subsoil. The depth to shale or limestone is 6 to 12 feet. Included in the areas mapped are some areas in which the surface layer is silt loam, sandy loam, or gravelly fine sandy loam.

This soil has good tilth and is easily kept in good tilth. It is moderate in fertility and moderate in organic-matter content. Runoff is slow, infiltration is moderately rapid, and the available moisture capacity is high. This soil has a deep root zone and responds to good management. It can be used moderately intensively for all locally grown crops. About 88 percent of the acreage is used for cotton or corn, 7 percent is used for pasture, and the rest is forested. There is a slight to moderate erosion hazard. *Capability unit IIe–3; woodland suitability group 1.*

Sequatchie loam, 2 to 6 percent slopes, eroded (SaB2).—This well-drained, friable soil is on low stream terraces. It developed in general alluvium washed from soils underlain by shale and sandstone. The 5- to 7-inch surface layer of brown to dark-brown loam consists of a mixture of the remaining original surface layer and the upper part of the former subsoil. There are spots of strong brown where erosion is severe. The subsoil is strong-brown to yellowish-brown fine sandy clay loam to clay loam. Mottling begins at a depth of more than 36 inches. In places rounded gravel and small mica flakes occur in the subsoil. The depth to shale or limestone is 6 to 12 feet. Included in the areas mapped are a few areas in which the surface layer is sandy loam or gravelly fine sandy loam.

This soil has good tilth, which is easily maintained. Fertility is moderate, and the organic-matter content is also moderate. The available moisture capacity is high, runoff is medium, and infiltration is moderately rapid. This soil has a deep root zone and responds to good management. It can be used moderately intensively for all locally grown crops. About 80 percent of the acreage is used for cotton or corn, about 17 percent is used for pasture, and the rest is forested. There is a slight to moderate erosion hazard because of slopes. *Capability unit IIe–3; woodland suitability group 1.*

Sequoia Series

The Sequoia series consists of well-drained soils that developed on the uplands in residuum weathered chiefly from acid shale. The surface layer is dark yellowish-brown silt loam, and the subsoil is yellowish-red, extremely firm silty clay. The depth to soft, weathered rock is 45 to 70 inches. These soils have a moderately slowly permeable subsoil. They are very strongly acid, are moderately low in natural fertility, and are low in organic-matter content. The slopes range from 2 to 15 percent.

The Sequoia soils are near the Farragut, Rarden, Montevallo, and Conasauga soils. They are not so red as the Farragut soils, and they have a deeper root zone than the Rarden and Montevallo soils. They have a redder subsoil and are better drained than the Conasauga soils.

The Sequoia soils occur throughout the county. They developed under a mixed stand of hardwoods and pine. Most of the acreage has been used for row crops. Now, about 50 percent of the acreage is cultivated, 25 percent is used for pasture, and 25 percent is forested.

Sequoia silt loam, 2 to 6 percent slopes, eroded (SbB2).—This is a well-drained soil on low rolling hills and in broad valleys. The major horizons are—

0 to 6 inches, dark yellowish-brown, friable silt loam.
6 to 10 inches, mixed yellowish-red and dark-brown, firm silty clay loam.
10 to 31 inches, yellowish-red, extremely firm and plastic silty clay; moderate, fine, subangular blocky structure; brownish-yellow mottles in lower part.
31 to 50 inches +, brownish-yellow, firm silty clay loam; few, fine, distinct, yellowish-red mottles.

The color of the surface layer ranges to dark grayish brown and yellowish brown. Accelerated erosion has removed most of the original surface layer, and in most places the present surface layer is a mixture of the remaining original surface soil and subsoil material. The subsoil ranges to strong brown in color and to silty clay loam in texture. The depth to weathered rock is 50 to 70 inches. A few shallow gullies have formed in some areas, and in some places there are a few small shale fragments throughout the profile. Included in the areas mapped are a few small areas in which the surface layer is silty clay loam or fine sandy loam.

This soil has medium runoff, moderate infiltration, and moderate available moisture capacity. It is moderately low in natural fertility and moderately low in organic-matter content. About 65 percent of the acreage is cultivated, 25 percent is used for pasture, and 10 percent is wooded. This soil has fair tilth and a deep root zone. It is suited to moderately intensive cultivation. Most locally grown crops are suitable, but the growth of deep-rooted crops is retarded somewhat by the clayey, extremely firm subsoil. There is a moderate to severe erosion hazard. *Capability unit IIIe–4; woodland suitability group 3.*

Sequoia silt loam, 6 to 10 percent slopes, eroded (SbC2).—This well-drained, yellowish-red soil of the uplands developed in residuum weathered from shale that in places was interbedded with limestone. The surface layer is yellowish-brown to dark yellowish-brown silt loam. In most places it is a mixture of the remaining original surface soil and subsoil material. In some patches the plow layer consists entirely of the original surface soil, and in others it consists entirely of subsoil material. Shallow gullies have formed in some places. The subsoil is yellowish-red silty clay to silty clay loam. It changes gradually to mottled brownish-yellow silty clay loam that contains a variable amount of partly disintegrated shale fragments. Included in the areas mapped

are a few small areas in which the surface layer is silty clay loam or fine sandy loam. In the eastern part of the county there are some included areas in which the surface layer is grayish-brown shaly silt loam and the subsoil is strong-brown shaly silty clay loam.

This soil has moderate infiltration, medium runoff, and moderate available moisture capacity. It is moderately low in natural fertility and moderately low in organic-matter content. It has fair tilth and a deep root zone, but the growth of deep-rooted crops is retarded somewhat by the clayey, extremely firm subsoil. This soil is suited to a medium range of locally grown crops. About 40 percent of the acreage is cultivated, 40 percent is used for pasture, and the rest is wooded. The erosion hazard is severe. *Capability unit IVe–5; woodland suitability group 3.*

Sequoia silty clay loam, 2 to 6 percent slopes, severely eroded (ScB3).—This is a well-drained soil on hilltops and in broad valleys on the uplands. It developed in residuum weathered from shale that in places was interbedded with limestone. The surface layer of yellowish-red to strong-brown silty clay loam is a mixture of the remaining original surface soil and the upper part of the former subsoil. The subsoil is yellowish-red to strong-brown silty clay. The depth to soft, weathered shale is 40 to 60 inches. Numerous shallow gullies and a few scattered deep gullies have formed in most areas. A few small areas in which the surface layer is silt loam were included in the areas mapped.

This soil has moderately slow infiltration, medium runoff, and low available moisture capacity. It is low in natural fertility and low in organic-matter content. The root zone is deep, but tilth is poor. About 50 percent of the acreage is cultivated, 20 percent is used for pasture, and the rest is wooded. This soil is suited to a medium range of locally grown crops and pasture grasses but produces only moderate to low yields because it is droughty. The hazard of erosion is very severe. *Capability unit IVe–5; woodland suitability group 4.*

Sequoia silty clay loam, 6 to 10 percent slopes, severely eroded (ScC3).—This well-drained soil of the uplands occurs as small scattered areas. It developed in residuum weathered from shale that in places was interbedded with limestone. The surface layer of yellowish-red silty clay loam is 3 to 5 inches thick. It is a mixture of the remaining original surface soil and the upper part of the former subsoil. The subsoil is yellowish-red to strong-brown silty clay or silty clay loam. The depth to bedrock is 30 to 50 inches. Many cracks develop in the surface layer when the soil is dry. Numerous shallow gullies and a few scattered deep gullies have formed in most areas. Included in the areas mapped are a few small areas in which the surface layer is silt loam or shaly silty clay loam.

This soil has moderately slow infiltration, rapid runoff, and low available moisture capacity. Natural fertility is low, and the organic-matter content is low. About 25 percent of the acreage is cultivated, 40 percent is used for pasture, and 35 percent is wooded. This soil has poor tilth and a moderately deep root zone. It is suited to a medium range of locally grown pasture grasses. If well fertilized and protected from overgrazing, it will produce fair to good yields of permanent pasture grasses. It is poorly suited to row crops because it is droughty. The erosion hazard is very severe. *Capability unit VIe–3; woodland suitability group 4.*

Sequoia silty clay loam, 10 to 15 percent slopes, severely eroded (ScD3).—This is a well-drained soil on short slopes on the uplands. It developed in residuum weathered from shale that in places was interbedded with limestone. The surface layer of yellowish-red silty clay loam is 3 to 5 inches thick. It is a mixture of the remaining original surface soil and the upper part of the former subsoil. The subsoil is a yellowish-red to strong-brown silty clay or shaly silty clay loam. The depth to bedrock is 30 to 50 inches. Many cracks appear in the surface layer when the soil is dry. Numerous shallow gullies and a few scattered deep gullies have formed in most areas. Included in the areas mapped are a few small areas in which the surface layer is silt loam or shaly silty clay.

This soil has slow infiltration, rapid runoff, and low available moisture capacity. It is low in natural fertility and low in organic-matter content. About 30 percent of the acreage is used for pasture and 70 percent is wooded, mostly with pine. If fertilized and otherwise well managed, this soil will produce fair to good yields of tall fescue for permanent pasture. It is well suited to pine. There is a very severe erosion hazard. *Capability unit VIe–3; woodland suitability group 4.*

Steekee Series

The Steekee series consists of steep, well-drained soils on mountain slopes. These soils developed in residuum weathered from weak-red sandstone. The surface layer of dark reddish-brown stony fine sandy loam is underlain by dark reddish-brown stony sandy clay loam. The depth to bedrock is 16 to 30 inches. These soils are rapidly permeable and very strongly acid. They are low in natural fertility and are moderate in organic-matter content. The slopes range from 25 to 60 percent.

The Steekee soils are near the Gilpin, Dekalb, and Allen soils. They have a redder profile than the Gilpin and Dekalb soils, and they have a browner surface layer and are shallower to bedrock than the Allen soils, which formed in old local alluvium.

The Steekee soils occur on the top and on the upper part of the eastern slopes of Horn Mountain, which is in the western part of the county. All of the acreage is forested. The native vegetation consisted of white oak, red oak, post oak, blackjack oak, hickory, dogwood, blackgum, sweetgum, and some scattered loblolly pine and shortleaf pine. These soils are not suitable for pasture or cultivation, because they are steep and stony.

Steekee stony fine sandy loam, 25 to 60 percent slopes (SdF).—This is a well-drained soil on mountain slopes. The major horizons are—

0 to 8 inches, dark reddish-brown, friable stony fine sandy loam.
8 to 24 inches, dark reddish-brown, firm stony sandy clay loam; moderate, fine, subangular blocky structure.
24 inches +, weak-red and white, slightly weathered but hard sandstone.

The surface layer ranges to yellowish red in color. The subsoil ranges from dark reddish brown to red. Gravel, cobblestones, and stones cover about 10 percent of the surface, and there are some scattered outcrops of rock.

Included in the areas mapped are a few small areas in which the surface layer is fine sandy loam.

This soil has moderate infiltration, rapid runoff, and moderate available moisture capacity. It is low in natural fertility and moderate in organic-matter content. It is too steep and too stony to be used for cultivated crops but is moderately well suited to trees. The erosion hazard is very severe. *Capability unit VIIe-3; woodland suitability group 10.*

Stendal Series

The Stendal series consists of somewhat poorly drained soils on flood plains. These soils are developing in recent alluvium washed from soils underlain by cherty limestone that in places is interbedded with sandstone. The surface layer is brown silt loam. It is underlain by mottled grayish-brown silt loam that is stratified with layers of mottled yellowish-brown and light olive-brown fine sandy loam. The depth to shale or limestone is 5 to 10 feet. These soils are moderately permeable and are very strongly acid. They are moderate in natural fertility and moderate in organic-matter content. The slopes range from 0 to 2 percent.

The Stendal soils are near the Melvin, Taft, Robertsville, and Philo soils. They are better drained and browner than the Melvin soils, and they are more friable and have a coarser textured subsoil than the Taft and Robertsville soils. They are not so well drained as the Philo soils.

The Stendal soils are of minor extent in the county and occur in the central part. The native vegetation consisted of hardwoods. About 50 percent of the acreage is used for row crops, 20 percent is used for pasture, and 30 percent is wooded. These soils are suited to a medium range of crops.

Stendal silt loam (0 to 2 percent slopes) (Stl).—This is a somewhat poorly drained soil of the flood plains. The major horizons are—

0 to 8 inches, brown, friable silt loam.
8 to 36 inches, mottled yellowish-brown, grayish-brown, gray, pale-olive, and dark-brown, friable fine sandy loam and silt loam.
36 to 50 inches +, light olive-brown, mottled with gray, very friable fine sandy loam.

The surface layer ranges from grayish brown to dark yellowish brown in color. The subsurface layer ranges from grayish brown to brown or yellowish brown, mottled with gray and pale olive. This soil is mottled at a depth of 6 to 15 inches. In most areas it is stratified throughout the profile with various amounts of silt and sand. The depth to shale is 5 to 10 feet. Included in the areas mapped are a few areas in which a gravelly layer occurs at a depth of 15 to 30 inches. Also included are small areas in which the surface layer is fine sandy loam.

There is a moderate wetness hazard because of very slow runoff and the high water table, and there is a slight overflow hazard throughout the year. The available moisture capacity is high, natural fertility is moderate, and the organic-matter content is moderate. This soil has good tilth and a deep root zone. It can be intensively cultivated and is suited to a medium range of crops and to most pasture grasses and legumes. Most areas can be improved with a good system of properly constructed ditches. *Capability unit IIw-1; woodland suitability group 7.*

Stendal-Philo silt loams (0 to 2 percent slopes) (Spl).—These soils of the flood plains are developing in recent alluvium washed from soils underlain by shale and sandstone. They occur in such intricate patterns and their boundaries are so indistinct that it was not practical to map them separately.

The Stendal soil is somewhat poorly drained, and it has a dark yellowish-brown silt loam surface layer that is underlain by dark-gray fine sandy clay loam to silt loam. Common, fine, distinct mottles occur in the underlying layers. The Philo soil is moderately well drained, and it has a brown silt loam surface layer that is underlain by brown, dark-brown, and very dark grayish-brown silt loam. A few, fine, faint mottles occur in the 12- to 32-inch layer.

The Stendal soil makes up about 60 percent of this mapping unit, and the Philo soil makes up about 40 percent. The major horizons of Stendal silt loam are—

0 to 14 inches, dark yellowish-brown, very friable silt loam; lower part is very dark grayish brown.
14 to 30 inches, dark-gray, friable fine sandy clay loam; common, fine, distinct, brown mottles.
30 to 46 inches, dark-gray, friable silt loam; many, medium, distinct, yellowish-brown mottles.

The surface layer ranges to dark grayish brown and light yellowish brown in color. Mottles begin at a depth of 10 to 18 inches. The 14- to 30-inch layer is silt loam or fine sandy loam in some areas. Lenses of silt and fine sandy loam are common at various depths. The depth to shale or limestone is 5 to 10 feet. A few areas in which the surface layer is fine sandy loam are included in the areas mapped.

The major horizons of Philo silt loam are—

0 to 12 inches, brown, very friable silt loam; lower part is dark yellowish brown.
12 to 32 inches, brown, very friable silt loam; few, fine, faint, light olive-brown mottles.
32 to 52 inches +, very dark grayish-brown, very friable silt loam; common, fine, distinct, olive-gray mottles; lower part is olive brown with olive-gray mottles.

The surface layer ranges in color to brown and light yellowish brown. Mottles begin at a depth of 15 to 25 inches. Lenses of fine sandy loam are common at various depths. The depth to shale or limestone is 5 to 10 feet. Included in the areas mapped are a few areas in which the surface layer is fine sandy loam.

These soils have moderately rapid infiltration, very slow surface runoff, and high available moisture capacity. Natural fertility is moderately low, and the organic-matter content is moderate. Permeability is moderately rapid in the subsurface layer. The reaction is very strongly acid. After heavy or prolonged rainfall, the water table is near the surface and, in some areas, the soils are covered with water for several days. These soils can be used intensively. They are suited to a medium range of crops and to all locally grown pasture grasses and legumes (fig. 6). The variety of suitable crops will be increased, especially in the more poorly drained areas, if drainage ditches are constructed. There is a moderate to slight hazard of excess water. *Capability unit IIw-1; woodland suitability group 7.*

Figure 6.—**Tall fescue and white clover on Stendal-Philo silt loams.**

Taft Series

The Taft series consists of somewhat poorly drained soils that have a fragipan. These soils occur on low stream terraces. They developed in old alluvium washed from soils underlain by limestone and cherty limestone and, to some extent, by shale. The surface layer is light olive-brown silt loam. The subsoil is olive-yellow, faintly mottled silty clay loam. The depth to the fragipan is 18 to 36 inches. The depth to shale or limestone is 6 to 8 feet. Permeability is moderately slow in the subsoil. Natural fertility is low, and the organic-matter content is low. The slopes range from 0 to 2 percent.

The Taft soils are adjacent to the Robertsville, Captina, and Etowah soils. They are not so red as the Etowah soils, which lack a fragipan. They are not so gray or so mottled as the Robertsville soils. They are less well drained and are less brown than the Captina soils, which have a fragipan.

The Taft soils make up a small acreage in the central part of the county. The original vegetation consisted of hardwoods and a little pine. About 40 percent of the acreage is used for pasture, 34 percent is cultivated, and the rest is idle or wooded. The suitability of these soils for crops is limited because of the fragipan.

Taft silt loam, 0 to 2 percent slopes (TwA).—This is a somewhat poorly drained soil on low stream terraces. The fragipan restricts the movement of water. The major horizons are—

0 to 6 inches, light olive-brown, very friable silt loam.
6 to 24 inches, olive-yellow, firm, faintly mottled silty clay loam; weak, fine, subangular blocky structure; upper part is olive brown.
24 to 38 inches, light yellowish-brown, very firm, compact and brittle silty clay loam (fragipan); many, medium, prominent mottles.
38 to 50 inches +, yellowish-brown, extremely firm silty clay; many, medium, prominent mottles.

The surface layer ranges from grayish brown and light olive brown to light yellowish brown in color. The subsoil is mottled olive-yellow to yellowish-brown silty clay loam or cherty silty clay loam. Concretions make up from 2 to 15 percent of the subsoil, by volume. The fragipan is 6 to 18 inches thick and ranges from weak to strong in compactness. It is at a depth of 18 to 36 inches. The depth to shale or limestone is 6 to 8 feet. Included in the areas mapped are a few small areas in which the surface layer is cherty silt loam.

This soil has moderate infiltration, slow runoff, and low available moisture capacity. It is low in natural fertility but produces average yields of some selected crops if management is good. There is a moderate to severe hazard of excess water because of the fragipan and the nearly level topography. Corn, soybeans, grain sorghum, and annual lespedeza are the best suited crops. Pasture grasses are moderately well suited. *Capability unit IIIw-2; woodland suitability group 7.*

Tupelo Series

The Tupelo series consists of somewhat poorly drained soils that have an extremely firm, plastic subsoil. These soils developed on low stream terraces in alluvium washed from soils underlain by limestone and, to a minor extent, by shale. They occur on flats and in depressions, about 1 to 2 miles from the larger streams. The slopes range from 0 to 6 percent. Many concretions throughout the profile are characteristic of these soils. The surface layer is light yellowish-brown silt loam. The subsoil is mottled light yellowish-brown silty clay that grades to pale-olive, extremely firm clay. Limestone is at a depth of 3½ to 5 feet. The reaction ranges from very strongly acid in the surface layer to mildly alkaline at a depth of 34 to 46 inches. Permeability is slow in the subsoil. Fertility is moderately low, and the organic-matter content is low.

The Tupelo soils are on low stream terraces, adjacent to the Captina, Taft, and Robertsville soils. They have a more plastic subsoil and lack the fragipan typical of the Captina and Taft soils. They are less gray and are better drained than the Robertsville soils. They are similar to the Colbert soils but have many more concretions throughout the profile.

The Tupelo soils are chiefly along State Highway No. 53, in the southwestern part of the county. The original vegetation consisted of hardwoods and some scattered pine and redcedar. About 70 percent of the acreage is used for pasture. The rest is mostly idle. These soils are suited to only a narrow range of crops.

Tupelo silt loam, 0 to 2 percent slopes (TxA).—This is a somewhat poorly drained soil on low stream terraces. The major horizons are—

0 to 7 inches, light yellowish-brown, friable silt loam; uppermost 2 inches is dark grayish brown.
7 to 11 inches, light yellowish-brown, firm silty clay loam.
11 to 20 inches, light yellowish-brown, extremely firm and plastic, mottled silty clay; moderate, fine, subangular blocky structure.
20 to 46 inches, pale-olive, extremely firm and plastic clay; many, fine, prominent mottles; numerous small concretions; the lower part is olive gray.
46 inches +, limestone.

The surface layer ranges to pale-olive and light olive-brown silt loam. In places it is mottled. The lower part of the subsoil is mottled olive-gray, brownish-yellow, or light olive-brown silty clay to clay. The concretions vary in amount throughout the profile but generally are numerous in the subsoil. In a few areas there is a 3- to 6-inch layer of recent alluvium that washed from soils derived from shale. This overwash material is brown in color. Limestone is at a depth of 40 to 60 inches.

This soil has very slow runoff, moderately slow infiltration, and very low available moisture capacity. The water table is high in winter, early in spring, and during wet periods in other seasons. Drainage by diversions, open ditches, or roadside ditches improves tilth and increases the range of suitable crops. The soil is low in natural fertility and is moderate in organic-matter content. It is suited to permanent pasture or hay but is poorly suited to temporary pasture. Corn, grain sorghum, lespedeza, and soybeans are grown in a few areas. Yields are low to moderate, depending on the amount of rainfall and on management. There is a moderate to severe hazard of excess water. *Capability unit IIIw-3; woodland suitability group 9.*

Tupelo silt loam, 2 to 6 percent slopes, eroded (TxB2).—This is a somewhat poorly drained soil on stream terraces. The uppermost 4 to 6 inches is grayish-brown silt loam and consists of a mixture of original surface soil and subsoil material. The subsoil is light olive-brown to pale-olive, mottled, extremely firm, plastic clay. The surface layer is strongly acid, and the subsoil is neutral in reaction. In some areas lime nodules are forming in the lower part of the subsoil. In most places the subsoil is moderate, medium, angular blocky in structure. The depth to limestone generally is more than 3 feet.

This soil has moderately slow infiltration and medium surface runoff. It is very low in available moisture capacity, and plants are damaged during short droughts. Natural fertility is moderately low, and the organic-matter content is low. This soil has poor tilth and can be cultivated only within a very narrow range of moisture content. It is better suited to hay crops and pasture grasses than to general field crops. The commonly grown cultivated crops are cotton, corn, small grain, and grain sorghum. There is a moderate to severe erosion hazard because of the slopes and the moderately slow rate of infiltration. *Capability unit IIIe-4; woodland suitability group 9.*

Tyler Series

The Tyler series consists of somewhat poorly drained soils on low stream terraces. A fragipan occurs below the firm silty clay loam subsoil. These soils developed in alluvium washed from soils underlain mainly by shale and, to some extent, by limestone and sandstone. The surface layer is light olive-brown, very friable fine sandy loam. The subsoil is light olive-brown silty clay loam. The average depth to shale is 5 feet. Permeability is moderately slow in the subsoil and slow in the fragipan. Natural fertility is low to moderately low, and the organic-matter content is low to moderately low. The reaction is very strongly acid. The slopes range from 0 to 6 percent.

The Tyler soils are adjacent to the Monongahela, Whitwell, and Purdy soils. They are more poorly drained and are mottled nearer the surface than the Whitwell and Monongahela soils. They are better drained and less gray than Purdy soils.

The Tyler soils occur along creeks and intermittent streams. The native vegetation consists of oak, beech, hickory, poplar, and a little scattered shortleaf pine and loblolly pine. Because of the hazard of excess water, pasture grasses are better suited than row crops. Corn and grain sorghum can be grown on soils that are artificially drained.

Tyler fine sandy loam, 2 to 6 percent slopes (TyB).—This is a somewhat poorly drained soil on low stream terraces. Water movement is restricted by the fragipan. The major horizons are—

0 to 6 inches, light olive-brown, very friable fine sandy loam.
6 to 18 inches, light olive-brown, firm silty clay loam; weak, medium, subangular blocky structure; upper part is light yellowish brown.
18 to 36 inches, light yellowish-brown, extremely firm, compact and brittle silt loam (fragipan).
36 to 46 inches +, olive-yellow, firm, mottled gravelly silt loam; weak, fine, subangular blocky structure.

The surface soil is light olive brown to dark grayish brown in color. The subsoil, above the fragipan, ranges to light yellowish-brown and olive-brown silty clay loam or clay loam. In some areas there are a few, fine, distinct mottles from 3 to 6 inches above the fragipan. The fragipan is at a depth of 15 to 30 inches. It varies in thickness but is ordinarily 12 inches thick. It is weakly developed in some areas and ranges to strongly developed in others. In places concretions occur in the subsoil. The slopes are mostly 2 to 4 percent. Included in the areas mapped are a few areas in which the surface layer is gravelly fine sandy loam or loam.

This soil has medium runoff, moderately rapid infiltration, and low available moisture capacity. It is moderately low in natural fertility and low in organic-matter content. There is a moderate to severe wetness hazard, and on slopes of 4 to 6 percent there is a slight erosion hazard. Tilth is good. This soil is suited to a narrow range of crops and to a medium range of pasture grasses. Drainage by diversions or open ditches will increase the range of suitable crops. Without drainage, the principal crops are corn, grain sorghum, sorghum, and lespedeza. Row crops and pasture crops respond moderately well to good management. *Capability unit IIIw-2; woodland suitability group 7.*

Tyler fine sandy loam, 0 to 2 percent slopes (TyA).—This is a somewhat poorly drained soil on low, level terraces along most permanent streams. It developed in old general alluvium washed from soils underlain by shale, limestone, and sandstone. A weak to strong fragipan occurs at a depth of 15 to 36 inches. The surface layer of grayish-brown to pale-olive, very friable fine sandy loam contains many roots and in places is mottled. The subsoil above the fragipan is mottled light olive-brown to olive, firm silty clay loam. The fragipan varies in thickness but averages about 12 inches. Small concretions are common on the surface and throughout the profile. Included in the areas mapped are some areas in which the surface layer is gravelly fine sandy loam or loam.

Runoff is very slow, infiltration is moderately rapid, and the available moisture capacity is low. Tilth is good, but natural fertility is low. Planting is delayed in spring because of the cold nature of this soil and its slowness in drying. Only a narrow range of crops is suitable, but this range can be increased if drainage is improved by open ditches. Corn, grain sorghum, or lespedeza are sometimes grown, but yields are low and failures are common. This soil is suited to permanent pasture but requires good management for moderate yields. There is a moderate to severe hazard of excess water. *Capability unit IIIw–2; woodland suitability group 7.*

Waynesboro Series

The Waynesboro series consists of well-drained soils on high stream terraces. These soils developed in alluvium washed from soils underlain by shale, limestone, and sandstone. The surface layer is brown to dark-brown fine sandy loam. The subsoil is yellowish-red to red clay loam. Shale or limestone is at a depth of 5 to 15 feet. Permeability is moderately rapid in the surface layer and moderate in the subsoil. The reaction is very strongly acid. Natural fertility is moderate, and the organic-matter content is low. The slopes range from 2 to 25 percent.

The Waynesboro soils commonly are adjacent to the Nolichucky, Monongahela, and Tyler soils. They have a thinner, browner surface layer than the Nolichucky soils and are redder and better drained than the Monongahela and Tyler soils, which are on low stream terraces.

The Waynesboro soils are fairly extensive and are widely distributed near the larger streams. They occur on ridgetops and adjacent slopes. The largest acreage is on severely eroded, moderately steep slopes adjacent to flood plains. The native vegetation consisted of hardwoods and scattered pine. About 40 percent of the acreage is cultivated, 25 percent is pastured, and the rest is wooded. Cotton, corn, alfalfa, and small grain are the principal cultivated crops.

Waynesboro fine sandy loam, 2 to 6 percent slopes, eroded (WbB2).—This is a well-drained soil on high stream terraces (fig. 7). The major horizons are—

0 to 7 inches, dark-brown, friable fine sandy loam.
7 to 12 inches, reddish-brown, firm clay loam.
12 to 28 inches, yellowish-red, firm clay loam; weak, fine, subangular blocky structure.
28 to 44 inches, red and dark-red, firm silty clay loam; few, fine, prominent mottles; moderate, fine, subangular blocky structure.
44 to 50 inches +, dark-red, very firm silty clay; strong-brown mottles.

The surface layer is dark brown to brown in color. In most places it consists of a mixture of original surface soil and subsoil material. Shallow gullies have formed in most areas. The subsoil is yellowish red to red and is dark red in the lower part. Dark-red or red, mottled silty clay loam or clay loam occurs at a depth of about 30 inches. In some places this layer is not mottled. In some areas there are numerous cobblestones and much gravel in the subsoil and in others there is a stone line. Included in the areas mapped are a few areas in which the surface layer is gravelly fine sandy loam to loam.

This soil has good tilth and can be cultivated throughout a fairly wide range of moisture content. It has moderate infiltration, medium runoff, and moderate available moisture capacity. It is very strongly acid and needs lime for most crops. It is moderately fertile but responds to fertilization. It is well suited to all locally grown crops and pasture grasses. About 70 percent of the acreage is cultivated. Corn and cotton are the principal crops. There is a slight to moderate erosion hazard because of the slopes. *Capability unit IIe–3; woodland suitability group 1.*

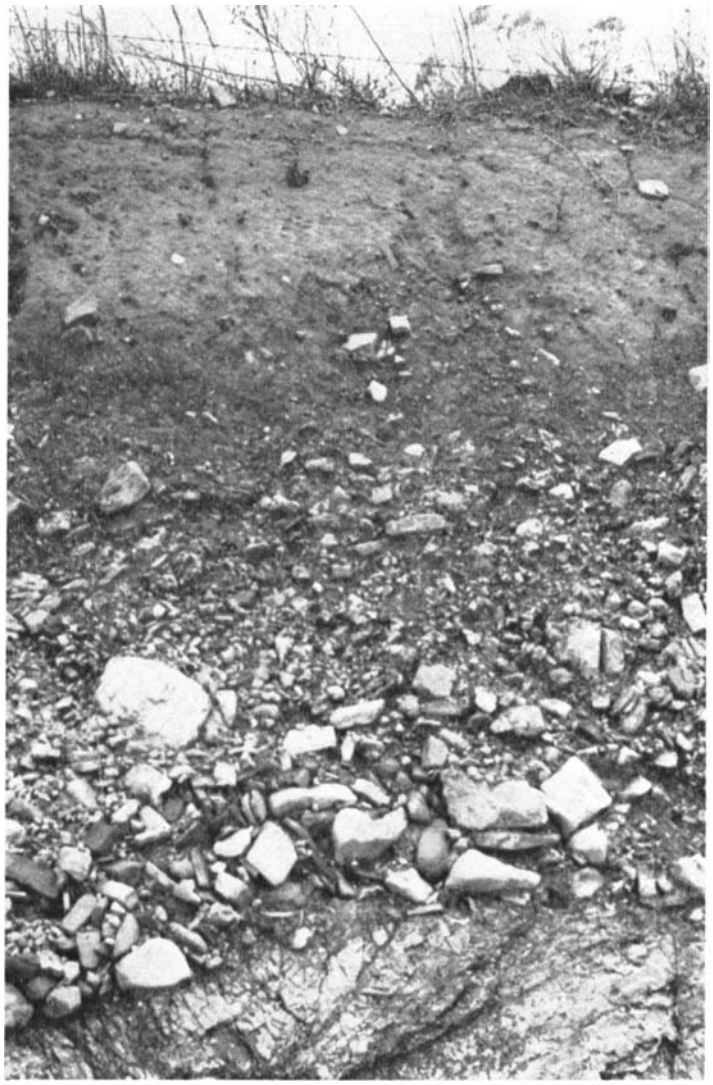

***Figure 7.*—Profile of Waynesboro fine sandy loam, 2 to 6 percent slopes, eroded. A very gravelly layer is just above the shale.**

Waynesboro fine sandy loam, 6 to 10 percent slopes, eroded (WbC2).—This is a well-drained soil on high stream terraces. It developed in alluvium washed from soils underlain by shale, limestone, and sandstone. The surface layer is dark-brown to brown fine sandy loam. It is a mixture of remnants of the original surface layer and the upper part of the former subsoil. Galled spots and a few shallow gullies occur in most areas. The subsoil is yellowish-red to red clay loam. It is firm to very firm in consistence, and in places it is mottled with yellowish-brown below a depth of 30 inches. The depth to shale or limestone is 5 to 15 feet. A few areas in which the surface

layer is gravelly fine sandy loam or loam are included in the areas mapped. Also included are a few areas in which gravel and cobblestones occur on the surface and throughout the profile.

This soil has good tilth and can be cultivated throughout a fairly wide range of moisture content. Infiltration is moderate, runoff is medium, and the available moisture capacity is moderate. Natural fertility is moderate, and the organic-matter content is low. This soil is moderately fertile, but it responds to fertilization. It is suited to a wide range of crops and pasture grasses. It can be used moderately intensively if well managed. There is a moderate to severe erosion hazard. *Capability unit IIIe–3; woodland suitability group 1.*

Waynesboro fine sandy loam, 10 to 15 percent slopes, eroded (WbD2).—This is a well-drained soil on short slopes on high stream terraces. It developed in old general alluvium washed from soils underlain by shale, limestone, and sandstone. The surface layer consists of about 6 inches of brown, friable fine sandy loam. It is underlain by yellowish-red to red, firm to extremely firm clay loam. Below a depth of 30 inches or more the color ranges to dark red, and in some areas it is mottled with yellowish brown. The depth to limestone or shale is 5 to 12 feet. In a few areas gravel, cobblestones, or stones make up from 5 to 10 percent of the subsoil, by volume. A stone line has developed in some areas. Included in the areas mapped are a few areas in which the surface layer is gravelly fine sandy loam or loam.

This soil is moderately fertile but is low in organic-matter content. It has moderate available moisture capacity, medium runoff, and moderate infiltration. It is suited to a wide range of crops and pasture grasses. Most of the acreage has been cultivated, but now only about 25 percent is cultivated, about 40 percent is used for pasture, and the rest has reverted to trees. Pastures yield well if properly fertilized and managed. There is a severe to very severe erosion hazard. *Capability unit IVe–1; woodland suitability group 1.*

Waynesboro fine sandy loam, 15 to 25 percent slopes, eroded (WbE2).—This is a well-drained soil on short slopes. It is adjacent to flood plains and downslope from other Waynesboro soils. It developed in old general alluvium washed from soils underlain by shale, limestone, and sandstone. The surface layer is brown, friable fine sandy loam and is 4 to 6 inches thick. In most places it consists of a mixture of original surface soil and subsoil material. The subsoil is red, firm to very firm clay loam. The depth to limestone or shale is 5 to 10 feet. There are a few gullies. In some areas there are a few rounded cobblestones and a little gravel throughout the profile.

This soil has rapid runoff because of the slopes. Water moves into the soil at a moderate rate, and the available moisture capacity is moderate. Natural fertility is moderate to moderately low. Most of the acreage is used for pasture or is forested. About 10 percent is used for corn, small grain, or lespedeza. This soil is poorly suited to crops, but it produces good yields of pasture plants if adequately fertilized and otherwise well managed. All of the commonly grown pasture grasses are suitable. There is a very severe erosion hazard. *Capability unit VIe–1; woodland suitability group 1.*

Waynesboro fine sandy clay loam, 6 to 10 percent slopes, severely eroded (WcC3).—This is a well-drained soil on high stream terraces, in the eastern part of the county. It developed in residuum washed from soils underlain by shale, sandstone, and limestone. This soil has eroded to the extent that in most places the plow layer is in the former subsoil. Shallow gullies and galled spots are common. The present surface layer is yellowish-brown to reddish-brown fine sandy clay loam. The subsoil is yellowish-red to red, very firm clay loam. In some areas there are a few cobblestones and a little gravel throughout the subsoil. The depth to shale or limestone is 4 to 12 feet.

Water enters this soil and moves through it at a moderate rate. Surface runoff is medium. Tilth is only fair because of the high percentage of clay in the plow layer, and natural fertility is moderately low. Some old fields have reverted to forest, but most of the acreage is used for pasture, and about 31 percent is cultivated. This soil is suited to a wide range of crops but needs a good cropping sequence and good management if it is row cropped. It is well suited to all pasture grasses and produces good yields if adequately fertilized and otherwise well managed. There is a very severe hazard of erosion. *Capability unit IVe–1; woodland suitability group 2.*

Waynesboro fine sandy clay loam, 10 to 15 percent slopes, severely eroded (WcD3).—This is a well-drained soil on short slopes on high stream terraces. It developed in alluvium washed from soils underlain by shale, sandstone, and limestone. Numerous shallow gullies have formed, and there are a few deep gullies. The surface layer is mostly within the former subsoil. It is reddish-brown to red fine sandy clay loam and is underlain by a yellowish-red to red, firm clay loam. The depth to shale is 2 to 6 feet. In most areas there is a little rounded gravel on the surface.

Water enters this soil moderately slowly. Runoff is rapid because of the moderately steep slopes. The available moisture capacity is low, natural fertility is moderately low, and the organic-matter content is low. Much of the acreage that was cultivated is now used for pasture. This soil is poorly suited to row crops. It is suited to pasture grasses and legumes and produces moderate yields if adequately fertilized and otherwise well managed. There is a very severe erosion hazard. *Capability unit VIe–1; woodland suitability group 2.*

Waynesboro fine sandy clay loam, 15 to 25 percent slopes, severely eroded (WcE3).—This is a well-drained soil on short slopes on high stream terraces. It developed in old general alluvium washed from soils underlain by shale, sandstone, and limestone. The surface layer is reddish-brown to red fine sandy clay loam. It consists mostly of subsoil material. Numerous shallow gullies have formed, and there are a few deep gullies in most areas. The subsoil is yellowish-red to red clay loam. Limestone or shale is at a depth of 2 to 8 feet. This soil has rapid runoff, moderately slow infiltration, and low available moisture capacity. Natural fertility is low, and the organic-matter content is also low. Tilth is poor because of the clayey surface layer. Most of the acreage is forested; only about 15 percent is pastured. This soil is poorly suited to crops. It will produce fair yields of pasture grasses and legumes if adequately fertilized and otherwise well managed. There is a very severe erosion hazard. *Capability unit VIe–1; woodland suitability group 2.*

Whitwell Series

The Whitwell series consists of moderately well drained and somewhat poorly drained soils on low stream terraces. These soils developed in mixed alluvium washed from soils underlain chiefly by sandstone, shale, and limestone. The surface layer is dark-brown silt loam. The subsoil is mottled yellowish-brown silty clay loam. Shale or limestone is at a depth of 8 to 12 feet. The entire profile is very strongly acid. Permeability is moderate, the organic-matter content is moderately low to moderate, and natural fertility is moderate. The slopes range from 0 to 6 percent but are mostly between 1 and 4 percent.

The Whitwell soils are adjacent to the Sequatchie, Pope, Monongahela, Tyler, and Purdy soils. They are less brown and are less well drained than Sequatchie soils. They have more clay in the subsoil than the Pope soils. They lack the fragipan that is characteristic of the Monongahela and Tyler soils. They are browner and less mottled than the Tyler soils and are browner than the poorly drained Purdy soils.

The Whitwell soils are extensive along the Conasauga, Coosawattee, and Oostanaula Rivers. They are important soils agriculturally. The original vegetation consisted mostly of hardwoods but included some loblolly pine and shortleaf pine. Approximately 80 percent of the acreage is cultivated. The highest areas generally are used for cotton, but corn is the principal crop.

Whitwell silt loam, 0 to 2 percent slopes (WdA).—This is a moderately well-drained soil on low stream terraces. It is flooded occasionally. The major horizons are—

0 to 8 inches, dark-brown, friable silt loam.
8 to 14 inches, yellowish-brown, firm silty clay loam; few, medium, faint, dark-brown mottles.
14 to 35 inches, yellowish-brown, firm silty clay loam; common to many, fine to medium, distinct mottles.
35 to 46 inches +, yellowish-brown, sticky silt loam; many, coarse, distinct mottles.

The surface layer is dark brown to grayish brown in color. The subsoil, to a depth of 24 to 40 inches, is yellowish brown to light olive brown mottled with dark brown or light yellowish brown. Mottling begins at a depth of 10 to 20 inches. In some areas brown or black concretions are common in the subsoil. There are a few mica flakes in the subsoil in some places, but none in other places. The consistence of the subsoil ranges from friable to very firm. Included in the areas mapped are some areas in which the surface layer is fine sandy loam and a few areas, along shale ridges, in which the surface layer is shaly silt loam. In most areas the 35- to 46-inch layer is mottled, stratified sandy loam and silt loam.

If well managed, this soil has good tilth, but it becomes hard if plowed or pastured when the moisture content is high. It has moderate infiltration, slow runoff, moderate available moisture capacity, and moderate natural fertility. The root zone is deep, but the high water table damages deep-rooted crops in winter and in spring. The range of suitable crops is medium. Corn, grain sorghum, and hay are the principal crops. Cotton is grown in the highest areas. All commonly grown pasture grasses and legumes are suitable. *Capability unit I–2; woodland suitability group 7.*

Whitwell silt loam, 2 to 6 percent slopes (WdB).—This is a brown, moderately well drained soil on low stream terraces. It is adjacent to soils on first bottoms along most of the permanent streams in the county. It developed in alluvium washed from soils underlain by shale, sandstone, and limestone. The surface layer is brown to dark-brown silt loam. The subsoil, to a depth of 24 to 40 inches, is mottled yellowish-brown to brown, firm silty clay loam. Mottling begins at a depth of 15 to 25 inches. The subsoil ranges from friable to very firm. Small mica flakes occur in some profiles. At a depth of 36 to 60 inches, the silty clay loam grades to stratified sand, silt, and clay.

This soil has medium surface runoff, moderate infiltration, and moderate available moisture capacity. Natural fertility is moderate, the organic-matter content is moderate, the root zone is deep, and tilth is good. Because of its low position, this soil is flooded occasionally for a period of 2 to 3 days, generally in winter and early in spring. Nevertheless, it is suited to a medium range of crops, and most of the acreage is cultivated. Corn, grain sorghum, and cotton are the principal crops. There is a slight to moderate erosion hazard and a slight hazard of excess water. *Capability unit IIe–3; woodland suitability group 7.*

Whitwell silt loam, moderately wet, 0 to 2 percent slopes (WqA).—This is a somewhat poorly drained soil on low stream terraces. It developed in alluvium washed from soils underlain by shale, sandstone, and some limestone. It is more poorly drained, lighter colored, and more distinctly mottled at a depth of 8 to 12 inches than Whitwell silt loam, 0 to 2 percent slopes. It is a moderately extensive soil and occurs mostly along Salacoa and Pine Log Creeks. The major horizons are—

0 to 8 inches, brown, friable silt loam.
8 to 12 inches, light olive-brown, firm silty clay loam; many, fine, distinct, pale-olive mottles.
12 to 26 inches, pale-olive, mottled, extremely firm silty clay loam; moderate, medium, subangular blocky structure.
26 to 50 inches +, olive-yellow to light olive-brown in lower part, firm silty clay loam; many, medium, distiact, pale-olive and yellowish-brown mottles.

The surface layer is brown to light gray, olive brown and light brownish gray. In some areas there are a few small concretions in this layer. The subsoil is light yellowish-brown, olive-brown, or pale-olive mottled silty clay loam or silty clay. Mottling begins at a depth of 6 to 12 inches. Rounded gravel occurs on the surface and throughout the profile in some areas. Some areas in which the surface layer is loam or fine sandy loam are included.

This soil has very slow surface runoff, moderate infiltration, and low available moisture capacity. Natural fertility is low, and tilth is fair. Grain sorghum, sorghum, and corn are grown in a few areas, but yields are low and failures are common. This soil is poorly suited to cultivated crops and to temporary pasture. It is suited to permanent pasture. It can be used moderately intensively, but there is a moderate to severe hazard of excess water. *Capability unit IIIw–2; woodland suitability group 7.*

Whitwell silt loam, moderately wet, 2 to 6 percent slopes (WqB).—This is a somewhat poorly drained soil that has an extremely firm subsoil. It developed on low terraces, in alluvium washed from soils underlain by shale, sandstone, and limestone. The surface layer is brown, light grayish-brown, or light olive-brown silt loam. The subsoil, to a depth of 24 to 36 inches, is light olive-brown and pale-olive, mottled, extremely firm silty clay

loam. Mottling begins at a depth of 8 to 15 inches. There are some concretions throughout the profile. Small rounded gravel is common on the surface and in the soil material.

Runoff is medium, infiltration is moderate, and the available moisture capacity is low. Natural fertility is moderately low, and the organic-matter content is moderate. The effective root zone is restricted by the firm subsoil. There is a severe hazard of excess water. Corn, sorghum, grain sorghum, and lespedeza are the principal crops on the small acreage that is now cultivated. This soil responds moderately well to good management but is suited to only a narrow range of crops. This range can be increased by the installation of drainage and diversion ditches. *Capability unit IIIw–2; woodland suitability group 7.*

Wolftever Series

The Wolftever series consists of moderately well drained soils that have a weakly cemented concretionary zone in the lower part of the subsoil. These soils occur on low stream terraces. They developed in alluvium washed from soils underlain by limestone and, to a minor extent, by shale. The alluvium is 4 to 8 feet thick over acid shale or limestone. The concretionary zone is at a depth of 15 to 36 inches. The surface layer is brown silt loam, and the subsoil is strong-brown silty clay loam. These soils are strongly acid in the surface layer and medium acid to very strongly acid in the subsoil. Permeability is moderate, natural fertility is moderately low, and the organic-matter content is moderately low. The slopes range from 0 to 6 percent.

The Wolftever soils are adjacent to the Captina, Etowah, Taft, and Robertsville soils. They have a concretionary zone that distinguishes them from these associated soils. They have a strong-brown subsoil, whereas the Etowah soils have a red to yellowish-red subsoil. They are better drained and are browner throughout than the Taft and Robertsville soils.

The Wolftever soils occupy a very small total acreage. Most of the acreage is south of Calhoun, but there are a few small areas near Sugar Valley. The native vegetation consisted of hardwoods and scattered pine. Most of the acreage is cultivated. These soils are suited to a medium range of locally grown crops, but their suitability for deep-rooted crops is limited because of the concretionary zone.

Wolftever silt loam, concretionary variant, 2 to 6 percent slopes (WfB).—This is a moderately well-drained soil on low stream terraces. It has a concretionary zone at a depth of 15 to 36 inches. The major horizons are—

0 to 8 inches, brown, friable silt loam.
8 to 18 inches, strong-brown, firm silty clay loam; moderate, fine, subangular blocky structure.
18 to 24 inches, gravel, coarse sand, and black concretions in a small amount of strong-brown, slightly sticky material.
24 to 48 inches +, weakly cemented fine chert and black concretions.

The surface layer is brown, dark grayish brown, or dark brown. The subsoil is brown to yellowish-red silty clay loam or cherty silty clay loam. In areas where the subsoil is yellowish red, the surface layer is dark brown. Chert and concretions vary from few to many in the solum. The depth to the concretionary zone is 15 to 36 inches. A few areas with a cherty silt loam or fine sandy loam surface layer are included.

This soil has medium runoff, moderate infiltration, and a low available moisture capacity. Natural fertility is moderately low, and the organic-matter content is moderately low. The root zone is moderately deep to shallow. Consequently, this soil is suited to a medium range of crops and pasture grasses. It responds moderately well to good management. Good yields can be expected from corn, cotton, grain sorghum, lespedeza, small grain, and pasture grasses. Good tilth is easily maintained. There is a slight to moderate erosion hazard and a slight wetness hazard. *Capability unit IIe–2; woodland suitability group 7.*

Wolftever silt loam, concretionary variant, 0 to 2 percent slopes (WfA).—This is a moderately well drained soil on low stream terraces. It has a concretionary zone in the lower part of the subsoil. The surface layer is dark-brown to dark grayish-brown silt loam. The subsoil is yellowish-brown to yellowish-red silty clay loam or cherty silty clay loam. In some areas there are light yellowish-brown mottles in the lower part of the subsoil. Included in the areas mapped are a few areas in which the surface layer is cherty silt loam or fine sandy loam.

This soil has very slow runoff, moderate infiltration, and low available moisture capacity. Fertility is moderately low, and the organic-matter content is moderately low. The root zone is moderately deep to shallow because of the concretionary zone. Good tilth is easily maintained. This soil is moderately well suited to all locally grown crops except deep-rooted crops. It responds moderately well to good management. About 45 percent of the acreage is cultivated, 35 percent is pastured, and the rest is idle or wooded. There is a slight to moderate wetness hazard because of the fragipan and the nearly level slopes. *Capability unit IIw–2; woodland suitability group 7.*

Use and Management of Soils

This section has six main parts. The first explains the system of capability classification used by the Soil Conservation Service and classifies the soils in Gordon County according to that system. The second describes the capability units, lists the soils in each unit, and discusses the suitability of the soils and the management requirements for growing cultivated crops and pasture plants. The third gives estimated yields of the common crops under two levels of management. The fourth discusses the suitability and limitations of the soils for woodland, by woodland suitability groups. The fifth lists the important wildlife species in the county, describes the wildlife suitability groups, and lists the soils in each group. The sixth interprets soil characteristics that affect engineering.

Capability Groups of Soils

The capability classification is a grouping that shows, in a general way, how suitable soils are for most kinds of farming. It is a practical grouping based on limitations of the soils, the risk of damage when they are used, and the way they respond to treatment.

In this system all the kinds of soil are grouped at three levels, the capability class, the subclass, and the unit. The eight capability classes in the broadest grouping are designated by the Roman numerals I through VIII. The soils in class I have few limitations, the widest range of use, and the least risk of damage when they are used. The soils in the other classes have progressively greater natural limitations. Those in class VIII are so rough, shallow, or otherwise limited that they do not produce worthwhile yields of crops, forage, or wood products.

The subclasses indicate major kinds of limitations within the classes. Within most of the classes there can be found up to four subclasses. The subclass is indicated by adding a small latter, *e*, *w*, *s*, or *c*, to the class numeral, for example, IIe. The letter *e* shows that the main limitation is risk of erosion unless close-growing plant cover is maintained; *w* means that water in or on the soil interferes with plant growth or cultivation (in some soils wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughtly, or stony; and *c*, used only in some parts of the country, indicates that the chief limitation is climate that is too cold or too dry.

In class I there are no subclasses, because the soils of this class have few or no limitations. Class V can contain, at the most, only subclasses *w*, *s*, and *c*, because the soils in it are subject to little or no erosion but have other limitations that restrict their use largely to pasture, range, woodland, or wildlife.

Within the subclasses are the capability units, in which are grouped soils enough alike to be suited to the same crops and pasture plants, to require similar management, and to have similar productivity and other responses to management. Thus, the capability unit is a convenient grouping for making many statements about management of soils. Capability units are generally identified by numbers assigned on a statewide basis, for example, IIe–1 or IIIe–2. Since not all of the capability units in the State are represented in Gordon County, the numbering of the units may not be consecutive.

Soils are placed in capability classes, subclasses, and units according to the degree and kind of their permanent limitations but without consideration of major and generally expensive landforming that would change the slope, depth, or other characteristics of the soil and without consideration of possible but unlikely major reclamation projects.

The eight classes in the capability system and the subclasses and units in this county are described in the list that follows.

Class I.—Soils that have few limitations that restrict their use.
- Unit I–2.—Very friable loamy soils on stream terraces.
- Unit I–3.—Friable or very friable loamy soils on bottom lands and along intermittent streams.

Class II.—Soils that have some limitations that reduce the choice of plants or require moderate conservation practices.
- Subclass IIe.—Soils subject to moderate erosion if they are not protected.
  - Unit IIe–1.—Well-drained loamy soils on uplands and stream terraces.
  - Unit IIe–2.—Well-drained cherty soils on uplands, and moderately well drained soils that have a fragipan, on low stream terraces and foot slopes.
  - Unit IIe–3.—Well-drained soils that have a loamy surface layer and a moderately fine textured subsoil; on terraces, foot slopes, and uplands.
- Subclass IIw.—Soils that have moderate limitations because of excess water.
  - Unit IIw–1.—Somewhat poorly drained and moderately well drained loamy soils that are developing in general alluvium; on flood plains and along intermittent drainageways.
  - Unit IIw–2.—Moderately well drained loamy soils that have a fragipan; on low stream terraces and foot slopes.

Class III.—Soils that have severe limitations that reduce the choice of plants, require special conservation practices, or both.
- Subclass IIIe.—Soils subject to severe erosion if they are cultivated and not protected.
  - Unit IIIe–1.—Well-drained soils that have a yellowish-red to dark-red subsoil and a deep root zone; on uplands and stream terraces.
  - Unit IIIe–2.—Well-drained cherty soils on uplands, and moderately well drained soils that have a fragipan; on stream terraces and foot slopes.
  - Unit IIIe–3.—Sloping, well-drained loamy soils that have a yellowish-brown to red subsoil; on stream terraces, uplands, and foot slopes.
  - Unit IIIe–4.—Gently sloping, well drained and moderately well drained soils that have a silt loam surface layer and a clayey subsoil; on uplands.
  - Unit IIIe–6.—Gently sloping, well drained and moderately well drained soils that have a gravelly or shaly loamy surface layer, a moderately fine textured or fine textured subsoil, and a shallow root zone.
- Subclass IIIw.—Soils that have severe limitations because of excess water.
  - Unit IIIw–2.—Somewhat poorly drained loamy soils on low stream terraces.
  - Unit IIIw–3.—Somewhat poorly drained soils that have a silt loam surface layer and a clayey subsoil; on level stream terraces, on valley floors on the uplands, and in depressions.

Class IV.—Soils that have very severe limitations that restrict the choice of plants, require very careful management, or both.
- Subclass IVe.—Soils subject to very severe erosion if they are cultivated and not protected.
  - Unit IVe–1.—Well-drained soils that have a loamy surface layer, a moderately fine textured or fine textured subsoil, and a deep root zone; on uplands, stream terraces, and foot slopes.

Unit IVe–2.—Well-drained, cherty loamy soils that have a deep root zone; on uplands.
Unit IVe–3.—Well drained or moderately well drained soils that have a loamy surface layer, a thin loamy to clayey subsoil, and a shallow root zone; on uplands.
Unit IVe–5.—Well-drained, eroded or severely eroded soils that have a loamy surface layer and a clayey subsoil.

Subclass IVw.—Soils that have very severe limitations for cultivation because of excess water.
Unit IVw–2.—Poorly drained soils that have a silt loam surface layer and a mottled, plastic clay subsoil; in depressions on the uplands.
Unit IVw–3.—Poorly drained soils that have a silt loam surface layer and a medium-textured or fine-textured mottled subsoil; on flood plains and low stream terraces; subject to occasional or frequent flooding.

Class V.—Soils that have little or no susceptibility to erosion but have other limitations that are impractical to remove without major reclamation and that limit their use largely to pasture, range, woodland, or wildlife food and cover. (There are no class V soils in Gordon County.)

Class VI.—Soils that have severe limitations that make them generally unsuitable for cultivation and limit their use largely to pasture, range, woodland, or wildlife food and cover.

Subclass VIe.—Soils severely limited, chiefly by risk of erosion if protective cover is not maintained.
Unit VIe–1.—Moderately steep to steep, well-drained, slightly to severely eroded soils on uplands and stream terraces.
Unit VIe–3.—Sloping to moderately steep loamy soils that have a shallow to moderately deep root zone; on uplands.

Class VII.—Soils that have very severe limitations that make them unsuitable for cultivation and that restrict their use largely to grazing, woodland, or wildlife habitats.

Subclass VIIe.—Soils very severely limited, chiefly by risk of erosion if protective cover is not maintained.
Unit VIIe–1.—Well-drained, steep cherty soils that have a deep root zone; on uplands.
Unit VIIe–3.—Gravelly or shaly soils that have a shallow to moderately deep root zone; on very strongly sloping to steep uplands.
Unit VIIe–4.—Very severely eroded soils consisting mostly of deep to shallow gullies that cannot be crossed by tillage implements.

Subclass VIIs.—Soils very severely limited by a shallow root zone, stones, or other soil features.
Unit VIIs–1.—Stony, rocky, or slaty loamy soils on moderately steep to very steep uplands.

Class VIII.—Soils and landforms that have limitations that preclude their use for commercial production of plants and restrict their use to recreation, wildlife habitats, water supply, or esthetic purposes. (There are no class VIII soils in Gordon County.)

Management by Capability Units [3]

The capability units are described in the following pages. The soils in each unit are listed, and some suggestions for use and management are given.

Capability unit I–2

This unit consists of deep, well-drained soils on nearly level stream terraces. The slopes range from 0 to 2 percent. The surface layer is very friable silt loam or loam and is 6 to 12 inches thick. The subsoil is firm to friable fine sandy clay loam and silty clay loam. The soils are—

Etowah loam, 0 to 2 percent slopes.
Sequatchie loam, 0 to 2 percent slopes.
Whitwell silt loam, 0 to 2 percent slopes.

Infiltration is moderately rapid to moderate, permeability is moderate, and the available moisture capacity is high to moderate. These soils have a moderate supply of organic matter and are moderately fertile. They are very strongly acid or strongly acid. Tilth is good, and the root zone is deep.

The soils in this unit cover slightly more than 2 percent of the county. About 85 percent of this acreage is cultivated. Cotton and corn are the principal crops, but alfalfa is also important. Small grain is grown on some of the larger farms. Lespedeza, alfalfa, orchardgrass, tall fescue, ryegrass, and bermudagrass are important hay and pasture grasses.

These soils have no limitations that restrict their use. They are suited to all crops grown locally. Ordinary good management is needed. All plant residues should be mowed or chopped and left on the surface between seasons of crop production and, whenever possible, on or near the surface during the season of crop production. Field borders should be seeded to perennial grass to provide places where farm machinery can be turned safely. Apply lime every 3 to 5 years and a complete fertilizer annually in amounts indicated by soil tests. Suitable cropping systems are—

1. Corn for grain continuously.
2. Cotton continuously, with a winter cover crop every other year.

All locally grown grasses and legumes are well suited. To establish grasses and legumes and to maintain high yields, apply lime and fertilizer according to the results of soil tests. Mow or use an appropriate herbicide to control weeds and brush. Fence to control grazing. Limit grazing to short periods, and allow longer periods for pastures to recover. Maintain at least 4 inches of growth, in order to keep the plants healthy, vigorous, and productive.

Special management practices generally are not required to maintain good tilth. The soils can be tilled safely throughout a wide range of moisture content. There are no hazards, but a few low areas are subject to occasional overflow of short duration. Erosion is not a hazard, and, consequently, such engineering practices as terraces, waterways, and contour tillage are not needed.

[3] J. N. NASH, conservation agronomist, Soil Conservation Service, assisted in the preparation of this subsection.

Capability unit I–3

This unit consists of well-drained, very friable or friable soils on bottom lands and along drainageways. The slopes range from 0 to 4 percent. Some soils in this unit are flooded at times, but only for very short periods. The surface layer is friable or very friable silt loam, shaly silt loam, or fine sandy loam. The subsoil is friable silt loam, silty clay loam, or fine sandy loam. The soils are—

Ennis silt loam, local alluvium.
Huntington silt loam, acid variant, local alluvium.
Pope fine sandy loam.
Pope shaly silt loam, local alluvium.

Infiltration is moderately rapid or moderate, and runoff is slow or very slow. Permeability is moderate or moderately rapid in the subsoil. These soils have high to moderate natural fertility and high available moisture capacity. They have a deep root zone and are easy to work. They are very strongly acid.

The soils in this unit cover nearly 2 percent of the county. Most of the acreage is used for such cultivated crops as corn, cotton, soybeans, wheat, oats, and barley. Tall fescue, orchardgrass, alfalfa, bermudagrass, dallisgrass, annual lespedeza, and millet are some of the most common hay and pasture plants.

These soils can be used intensively. There is no erosion hazard. Runoff from higher areas can be controlled by diversion ditches. A winter cover crop of grasses or legumes helps to preserve good tilth, to supply organic matter, and to maintain good yields. Seed field borders to perennial grasses to provide places where farm machinery can be turned safely.

These soils respond to good management and are among the most productive in the county. They are suited to all of the locally grown crops. All plant residues should be mowed or chopped and left on the surface between seasons of crop production and, whenever possible, on or near the surface during the season of crop production. Apply lime every 3 to 5 years and a complete fertilizer annually in amounts indicated by soil tests. Suitable cropping systems are—

1. Corn for grain continuously.
2. Cotton continuously, and a winter cover crop every other year.

All locally grown grasses and legumes are suitable. Grasses and legumes respond to liberal amounts of fertilizer. To establish grasses and legumes and to maintain high yields, apply lime and fertilizer according to the results of soil tests. Mow or use an appropriate herbicide to control weeds and brush. Fence to control grazing. Limit grazing to short periods, and allow longer periods for the pasture to recover. Maintain at least 4 inches of growth, in order to keep the plants healthy, vigorous, and productive.

The soils in this unit are suitable for irrigation, and they commonly are near a good source of water. Irrigation systems need to be designed carefully for each field, to prevent loss of soil and water. Terraces, contour tillage, and waterways are not needed.

Capability unit IIe–1

This unit consists of well-drained soils on uplands and high stream terraces. These soils generally occur on smooth tops of low hills and have slopes of 2 to 6 percent. The surface layer is very friable or friable fine sandy loam, silt loam, or loam. The subsoil is firm or very firm silty clay to sandy clay loam. The depth to bedrock is about 4 to 10 feet or more. The soils are—

Christian fine sandy loam, 2 to 6 percent slopes.
Cumberland loam, 2 to 6 percent slopes.
Dewey silt loam, 2 to 6 percent slopes, eroded.
Farragut silt loam, 2 to 6 percent slopes, eroded.

Infiltration and permeability are rapid to moderate, and the available moisture capacity is moderate to high. Plant roots can effectively penetrate to a depth of 48 inches or more. These soils are low or medium in organic-matter content and are moderate or moderately low in natural fertility. They are strongly acid or very strongly acid. Tilth ranges from fair in the silt loams to good in the fine sandy loams.

These soils occupy slightly more than 1 percent of the county. They are suited to a wide range of crops and can be used moderately intensively. Small grain is some-

***Figure 8.*—Cotton on Cumberland loam, 2 to 6 percent slopes. Yields of 750 to 1,100 pounds of cotton (lint) can be produced if management is good.**

times damaged when severely cold weather occurs early in the growing season, but generally medium to high yields can be expected if management is good. Corn, cotton, soybeans, grain sorghum, and millet produce well under good management (fig. 8). Legumes that are well suited are alfalfa, sericea lespedeza, red clover, white clover, annual lespedeza, crimson clover, vetch, and Austrian Winter peas. Grasses that grow well are bermudagrass, tall fescue, ryegrass, dallisgrass, and orchardgrass.

The hazard of erosion is slight to moderate on these soils. A close-growing crop 1 year out of 2 helps to preserve good tilth and to maintain the organic-matter content. All residues should be kept on the surface between growing seasons and on or near the surface during the season of row-crop production. Growing deep-rooted legumes and varying the depth of tillage help to prevent a hardened layer, or plowsole. Suitable cropping systems are—

1. 1 year of cotton; 1 year of cotton, followed by a winter cover; 1 year of corn for grain.
2. 4 to 6 years of alfalfa; 1 to 2 years of corn or cotton.

Phosphate and potash are required for high yields of crops and permanent pasture. Nitrogen is needed for all crops except legumes. Such legumes as alfalfa and clover grow best on slightly acid or neutral soils. Lime should be added to maintain this reaction. Most other legumes and some grasses and crops also respond to lime. Boron is required to maintain productive stands of alfalfa. Organic matter is depleted at a moderately rapid rate, even though management is good.

Surface runoff is the chief hazard if the soils are cultivated. Contour tillage, vegetated waterways, and the use of adequately fertilized close-growing crops in the rotation are effective measures for control of water. Where the slopes are long enough, terracing and stripcropping help to control runoff.

Capability unit IIe-2

The soils of this unit are well drained to moderately well drained. They occur on rolling uplands, on low stream terraces, and on toe slopes and fans. The slopes range from 2 to 6 percent. Some areas are cherty, and some are gravelly. The surface layer is very friable silt loam or fine sandy loam. The subsoil is silty clay loam, cherty silty clay loam, gravelly sandy clay loam, or clay loam. In some places there is a fragipan or concretionary zone at a depth of 15 to 36 inches. The depth to bedrock is 2½ to 30 feet or more. The soils are—

Clarksville cherty silt loam, 2 to 6 percent slopes.
Fullerton cherty silt loam, 2 to 6 percent slopes.
Landisburg cherty silt loam, 2 to 6 percent slopes.
Leadvale silt loam, 2 to 6 percent slopes.
Locust gravelly fine sandy loam, 2 to 6 percent slopes.
Monongahela fine sandy loam, 2 to 6 percent slopes.
Monongahela gravelly silt loam, 2 to 6 percent slopes.
Wolftever silt loam, concretionary variant, 2 to 6 percent slopes.

These soils have moderate to rapid infiltration. They vary from slow to rapid in permeability because of the fragipan, the texture of the subsoil, and the amount of chert or gravel in the subsoil. The available moisture capacity is low to moderate. The effective root zone

Figure 9.—**Soybeans on Monongahela fine sandy loam, 2 to 6 percent slopes.**

ranges from 15 inches in thickness in some soils that have a fragipan to 84 inches or more in residual soils that are underlain by limestone. The reaction is medium acid to extremely acid. Natural fertility is low to moderately low, and the organic-matter content is also low to moderately low.

The soils in this unit occupy almost 5 percent of the county. About 30 percent of the acreage is cultivated, 35 percent is pastured, and the rest is wooded.

These soils can be used moderately intensively. The range of suitable crops is medium because of the fragipan and the high content of chert. The Leadvale, Monongahela, and Wolftever soils are not suited to wheat or to alfalfa. Most of the cultivated acreage is used for cotton and corn. Lespedeza is the most common hay crop. The best suited legumes are white clover, lespedeza, crimson clover, soybeans, vetch, and Austrian Winter peas (fig. 9). The best suited grasses are tall fescue, bermudagrass, dallisgrass, and orchardgrass. The cherty soils are well suited to tomatoes, beans, squash, and other early truck crops.

The hazard of erosion is slight to moderate. Generally, terraces are not used because of the small size of the areas, the topographic position, or the complex slopes. A close-growing crop 1 year out of 2 helps to control erosion, to maintain good tilth, and to supply organic matter. All residues should be kept on the surface between growing seasons and on or near the surface during the season of row-crop production. Suitable cropping systems are—

1. Corn for grain continuously.

2. 1 year of cotton; 1 year of grain, followed by soybeans or by grain sorghum; 1 year of corn for grain.

Heavy fertilization is required for good yields of all crops. Phosphate, potash, and nitrogen generally are needed. Legumes grow best if the reaction is slightly acid or neutral, and lime should be added to maintain this reaction. Some grasses and row crops also respond to lime.

These soils are less erodible than chert-free and gravel-free soils that contain more clay. Diversions and vegetated waterways help to control erosion in some areas. The addition of organic matter preserves soil structure, increases infiltration, improves water-holding capacity, and promotes bacterial action.

Capability unit IIe–3

In this unit are well-drained soils of the uplands, stream terraces, foothills, and toe slopes. Most of these soils developed in alluvium. The slopes range from 2 to 6 percent. The surface layer is friable loam, fine sandy loam, or silt loam. The subsoil is firm clay loam, silty clay, sandy clay loam, or silty clay loam. The minimum depth to bedrock is 4 feet, but commonly the depth is about 5 to 10 feet. The Whitwell soil is subject to occasional flooding, mostly for a period of 2 or 3 days in winter or early in spring. The soils are—

Allen fine sandy loam, 2 to 6 percent slopes, eroded.
Etowah loam, 2 to 6 percent slopes.
Hartsells fine sandy loam, 2 to 6 percent slopes.
Muse silt loam, 2 to 6 percent slopes.
Muse silt loam, 2 to 6 percent slopes, eroded.
Nolichucky fine sandy loam, 2 to 6 percent slopes.
Sequatchie loam, 2 to 6 percent slopes.
Sequatchie loam, 2 to 6 percent slopes, eroded.
Waynesboro fine sandy loam, 2 to 6 percent slopes, eroded.
Whitwell silt loam, 2 to 6 percent slopes.

These soils have moderate or moderately rapid infiltration and moderate to high available moisture capacity. Natural fertility is low to moderate, the organic-matter content is low to moderate, and the reaction is strongly acid or very strongly acid. The root zone is deep, and tilth is good to fair.

The soils in this unit make up slightly less than 7 percent of the county. Most of the acreage is cultivated. Cotton, corn, small grain, soybeans, and truck crops are grown extensively. Some of the acreage is used for permanent pasture or for temporary pasture. Only a few scattered patches remain in woods.

These soils are suited to all of the commonly grown crops and pasture grasses. They are among the best soils in the county for alfalfa and for other legumes and grasses grown for hay or pasture. They are well suited to winter pasture because of their productivity, high position, and good drainage. High yields of row crops are also readily obtained.

A slight to moderate erosion hazard is the main limitation if these soils are cultivated. A close-growing crop 1 year out of 2 helps to preserve good tilth and to maintain the organic-matter content. All residues should be left on the surface between growing seasons and on or near the surface during the season of row-crop production. Suitable cropping systems are—

1. Corn for grain continuously.
2. 1 year of cotton; 1 year of cotton or silage, followed by a winter cover crop; 1 year of corn for grain.

Additions of phosphate and potash are needed for high yields of all crops and pasture plants. Nitrogen is needed for all crops, including annual legumes and newly planted perennial legumes. Most crops respond to lime, and all legumes require lime. Boron is needed to maintain productive stands of alfalfa. Lime and fertilizer should be applied according to the results of soil tests.

Control of surface runoff is needed to prevent erosion. A complete water-disposal system that includes terraces or stripcropping is desirable. Terraces and rows should drain from ridges into natural or constructed outlets. Field borders should be seeded to perennial grasses to provide places where farm machinery can be turned safely. These soils are suitable for sprinkler irrigation if water is available.

Capability unit IIw–1

In this unit are somewhat poorly drained and moderately well drained soils. These soils occur on flood plains, on fans, or as narrow strips along intermittent streams. Some areas are slightly depressed. The slopes range from 0 to 2 percent. The surface layer is friable or very friable and is medium textured. The subsoil is mottled, friable silt loam, silty clay loam, or very fine sandy loam. The soils are—

Local alluvial land, moderately wet.
Stendal silt loam.
Stendal-Philo silt loams.

These soils have moderately rapid or moderate infiltration and moderate permeability. They have a deep root zone, and are high in available moisture capacity. Natural fertility is moderate or moderately low. The reaction is very strongly acid.

The soils in this unit occupy less than 4 percent of the county. About 30 percent of the acreage is cultivated, 28 percent is pastured, and the rest is wooded. Most of the cultivated acreage is used for corn, lespedeza, and grain sorghum. Many areas are used continuously for row crops, mostly corn. Soybeans are grown in a few areas.

The range of suitable crops is medium because of the overflow hazard and the high water table. Cotton, alfalfa, and coastal bermudagrass generally are not suitable. Small grain grows well but commonly tends to lodge and to mature later than on the well-drained soils of the uplands. Corn is well suited and is widely grown. Grain sorghum is also well suited.

These soils are especially well suited to pasture, and they are valuable as supplemental summer pasture. Good stands of grasses and legumes are readily obtained, and nearly all of the common pasture grasses can be grown. Plants continue to grow during dry periods, when plants on the uplands have wilted.

Row crops can be grown almost continuously but grow best if the rotation is short. A rotation of corn and hay is well suited. If row crops are grown, organic matter can be supplied and tilth maintained by turning under

winter legumes in spring. Suitable cropping systems are—

1. Corn or grain sorghum for grain continuously.
2. Oats or rye, followed by grain sorghum for grain.

Fair yields are obtained without the use of fertilizer, but liberal amounts of phosphate and potash are needed to maintain high yields under intensive cropping. Nitrogen is needed for all crops except legumes. Yields of most crops are increased if lime is applied every 3 to 5 years. Apply fertilizer and lime in amounts indicated by soil tests.

In most places either surface or internal drainage is needed to expand the range of suitable crops and increase crop yields. The advisability of installing artificial drainage depends on many factors, including cost, feasibility from an engineering standpoint, and the acreage of suitable soils on the farm. Artificial drainage is not advisable on some farms, because only a few additional crops could be grown. In some places, diversion ditches can be used to divert overwash.

Capability unit IIw–2

This unit consists chiefly of moderately well drained soils that have a fragipan or a weakly cemented concretionary zone at a depth ranging from 15 to 40 inches. These soils are on low stream terraces and foot slopes. The slopes range from 0 to 2 percent. The surface layer is silt loam or gravelly loam. The subsoil above the fragipan is friable to firm silty clay loam to gravelly sandy clay loam. The fragipan generally is very firm, compact, and brittle. Shale or limestone bedrock is at a depth of 3 to 8 feet. The soils are—

Captina silt loam, 0 to 2 percent slopes.
Landisburg cherty silt loam, 0 to 2 percent slopes.
Leadvale silt loam, 0 to 2 percent slopes.
Sandy and gravelly land.
Wolftever silt loam, concretionary variant, 0 to 2 percent slopes.

Infiltration is very rapid to moderate. The available moisture capacity is low to moderate and varies with depth to the fragipan. The root zone is limited in depth by the fragipan or concretionary zone. Permeability is moderately rapid above the fragipan. Natural fertility is moderate to low, and the reaction is very strongly acid.

These soils occupy slightly less than 3 percent of the county. About 72 percent of the acreage is wooded; the rest is divided about equally between cropland and pasture. The range of suitable crops and pasture grasses is medium. The better suited crops are cotton, corn, soybeans, grain sorghum, and small grain. Some of the better suited hay and pasture grasses are orchardgrass, tall fescue, lespedeza, and white clover. Alfalfa and Coastal bermudagrass grow moderately well for 1 or 2 years, but the life of the stand is short because the lower part of the subsoil is wet in winter and in spring.

There is no erosion hazard on these soils. Cropping systems should be planned to add organic matter, to maintain tilth, and to promote good bacterial action. Suitable cropping systems are—

1. Corn for grain continuously.
2. 2 years or more of tall fescue; 1 or 2 years of corn or grain sorghum.

Moderate to heavy applications of lime and of a complete fertilizer are essential for good yields of both crops and pasture plants. Apply lime and fertilizer according to the results of soil tests. Nitrogen is needed for all crops except legumes.

There is a slight to moderate water hazard, not so much because of flooding as because of a periodically high water table and excess seepage water from nearby slopes. Seepage water or floodwater is difficult to intercept. Some areas can be drained by open ditches.

Capability unit IIIe–1

In this unit are well-drained soils on uplands and on high stream terraces. The slopes range from 2 to 10 percent. The surface layer is friable to very friable and loamy. The subsoil commonly is firm to very firm silty clay loam, but in places it is silty clay, clay loam, or sandy clay loam. The depth to bedrock is more than 4 feet and ordinarily is about 6 to 10 feet. The soils are—

Christian fine sandy loam, 6 to 10 percent slopes.
Christian fine sandy clay loam, 2 to 6 percent slopes, severely eroded.
Cumberland loam, 6 to 10 percent slopes, eroded.
Cumberland silty clay loam, 2 to 6 percent slopes, severely eroded.
Dewey silt loam, 6 to 10 percent slopes, eroded.
Farragut silty clay loam, 2 to 6 percent slopes, severely eroded.

These soils are low to moderately high in natural fertility and moderate to high in available moisture capacity. They have a deep root zone and are very strongly acid. Infiltration is rapid where the surface layer is moderately coarse textured and ranges to moderately slow where the surface layer is moderately fine textured. Except for the severely eroded Cumberland and Farragut soils, these soils are fairly easy to work and are easily kept in good tilth. The soils that have a silty clay loam surface layer can be tilled only within a narrow range of moisture content.

The soils in this unit occupy about 1 percent of the county. About 69 percent of their acreage is cultivated, 22 percent is used for pasture, and the rest is small wooded spots. Many kinds of crops and pasture grasses are grown, but corn, cotton, and hay are the principal crops. Alfalfa and Coastal bermudagrass are also grown to some extent. Lespedeza, tall fescue, and oats are grown mostly for hay.

These soils are well suited to all crops commonly grown in the county. They are particularly well suited to cotton, corn, soybeans, grain sorghum, and millet. Some of the most suitable hay and pasture grasses are bermudagrass, tall fescue, ryegrass, dallisgrass, and orchardgrass. The best suited legumes are alfalfa, sericea lespedeza, red clover, white clover, annual lespedeza, crimson clover, vetch, and Austrian Winter peas. Legumes can be grown separately or in combination with grasses. Yields of corn are unpredictable because of midsummer drought. Severely cold weather sometimes damages small grain and newly seeded pasture grasses on the silty clay loams.

A close-growing crop should be grown 2 out of every 3 or 4 years to control erosion, to maintain good tilth, and to supply organic matter. All plant residues should be moved or chopped soon after harvest and left on the surface between seasons of crop production, and on or

near the surface during the season of crop production. Use a perennial crop in the cropping system whenever possible. Suitable cropping systems are—

1. First year, corn; second year, cotton; third year, grain, followed by lespedeza; fourth year, grain, followed by lespedeza.
2. 2 years or more of grass; 1 year of a row crop.

These soils respond well to fertilization and to other management. Additions of phosphate and potash are required for high yields. Nitrogen is needed for all crops except legumes. Most crops, especially legumes, respond to lime. Soil tests will indicate how much lime is needed. Weeds and brush can be controlled in pastures by mowing or using appropriate herbicides. Fence pastures to control grazing, and limit grazing to short periods.

Surface runoff is the chief hazard if these soils are cultivated. If row crops are grown, runoff can be controlled by cultivating on the contour, sodding natural waterways, and including close-growing crops in the cropping system. Terracing or stripcropping is helpful in controlling erosion if slopes are long. Most of these soils become rather hard when dry, and they clod or puddle if they are cultivated when wet. If crop residues are used and green-manure crops are turned under, the range of moisture content within which these soils can be cultivated will be increased.

Capability unit IIIe–2

This unit consists of well-drained cherty soils on uplands and moderately well drained soils that have a fragipan and are on stream terraces and foot slopes. The slopes range from 6 to 10 percent. The surface layer is very friable cherty silt loam or fine sandy loam. The subsoil is cherty silty clay loam, silty clay loam, or clay loam. The depth to cherty limestone and shale is 4 to 30 feet. The soils are—

Clarksville cherty silt loam, 6 to 10 percent slopes, eroded.
Fullerton cherty silt loam, 6 to 10 percent slopes.
Landisburg cherty silt loam, 6 to 10 percent slopes.
Monongahela fine sandy loam, 6 to 10 percent slopes.

These soils are moderate to moderately rapid in infiltration, low to moderately low in natural fertility, and very strongly or extremely acid. The available moisture capacity is moderate to low because of the high content of chert and gravel or because of the fragipan. Permeability is slow in the fragipan layer of the Landisburg and Monongahela soils. The root zone generally is deep, but it is shallow in soils that have a fragipan. The soils in this unit absorb water more rapidly and are less erodible than the soils in unit IIIe–1. They can be tilled throughout a wide range of moisture content and are not likely to clod or puddle.

The soils in this unit occupy about 2 percent of the county. Nearly half of the acreage is forested with hardwoods and pine. About 30 percent is used for pasture, most of which has a cover of native grasses. The rest is cultivated. Corn, cotton, and small grain for hay are the principal crops.

These soils are suited to a medium range of crops. The most suitable crops are corn, cotton, small grain, soybeans, and truck crops. Small grain generally is not damaged by severely cold weather. Most grasses and legumes grown in the county are also suitable. They can be grown separately, but yields of the more palatable forage plants are higher if grasses and legumes are grown together. Because of the moderate to low available moisture capacity, the best stands of most legumes and grasses are obtained if planting is undertaken in fall.

These soils are less erodible than chert-free soils and soils that contain more clay. However, they will erode if cultivated, and they are not suited to intensive use. If they are used for tilled crops, the cropping sequence should be long and should consist of close-growing crops or sod crops about 3 years out of 4. A rotation that consists of a small grain and a mixture of grasses and legumes may be more profitable than a rotation that includes a row crop.

All crop residues should be mowed or chopped soon after harvest and left on the surface between seasons of crop production and, whenever possible, on or near the surface during the season of crop production. Apply lime every 3 to 5 years and a complete fertilizer annually, in amounts based on results of soil tests. Suitable cropping systems are—

1. 2 years or more of grass; 1 year of corn; 1 year of truck crops or cotton.
2. 2 years of grain followed by lespedeza; 1 year of cotton or truck crops.

Yields of most of the common crops are not consistently high. The response to lime and fertilizer is not enough to justify extremely heavy fertilization, but adequate fertilization is needed for moderate yields of all crops, including pasture crops. Yields of alfalfa are not so high as on the soils in unit IIIe–1, nor do the stands last as long.

Erosion can best be controlled by the use of close-growing crops. Where the slopes are short and complex, terracing is difficult. Where the slopes are long, parallel or contour stripcropping can be used to help control erosion.

Capability unit IIIe–3

The soils in this unit are well drained and have a deep root zone. They occur on sloping stream terraces, uplands, and foot slopes. The surface layer is very friable fine sandy loam, loam, or silt loam. Some layers are gravelly. The subsoil is moderately fine textured. The soils are—

Allen fine sandy loam, 6 to 10 percent slopes, eroded.
Etowah loam, 6 to 10 percent slopes.
Hartsells fine sandy loam, 6 to 10 percent slopes.
Jefferson gravelly fine sandy loam, 6 to 10 percent slopes.
Muse silt loam, 6 to 10 percent slopes, eroded.
Nolichucky fine sandy loam, 6 to 10 percent slopes.
Waynesboro fine sandy loam, 6 to 10 percent slopes, eroded.

Infiltration is moderate to moderately rapid, and the available moisture capacity is high to moderate. Fertility ranges from moderate to moderately low, and the reaction is very strongly acid. Most of these soils have good tilth and are easy to work. They absorb water more rapidly and have lower natural fertility than the soils in unit IIIe–1. They are suited to a wider range of crops and are more erodible than the soils in unit IIIe–2.

The soils in this unit occupy slightly more than 3 percent of the county. They are farmed fairly extensively. About 75 percent of the acreage is cultivated, and about

15 to 20 percent is used for pasture. Only a few small scattered spots are forested, mainly with hardwoods. Corn, cotton, hay crops, and grain sorghum are the principal crops, but all of the common crops are grown. The pasture grasses and legumes most commonly grown are tall fescue, orchardgrass, bermudagrass, lespedeza, white clover, and red clover.

Erosion is a moderate to severe hazard. Because of their strong slopes, these soils are more susceptible to erosion than the soils in unit IIe–3, and, consequently, they need a longer rotation that includes more close-growing crops. A close-growing crop 2 years out of every 3 or 4 is desirable.

Crop residues should be mowed or chopped and left on the surface between seasons of crop production and, whenever possible, on or near the surface during the season of crop production. Suitable cropping systems are—

1. 2 years or more of grass; 1 or 2 years of a row crop.
2. 2 years or more of grain, followed by lespedeza; 1 year of a row crop.

These soils respond well to large amounts of fertilizer and to additions of lime and organic matter. Lime and fertilizer should be applied according to the results of soil tests. Liberal applications of a complete fertilizer and lime generally are needed to establish pastures of high quality. Alfalfa needs boron.

Because of the strong slopes, there is a moderate to severe hazard of erosion. Water can be controlled to some extent by cultivating on the contour and by keeping natural waterways sodded. Contour or parallel stripcropping may be needed on some of the longer slopes. Terracing these areas helps to control runoff. These erosion-control measures can be supplemented by keeping close-growing crops on the soil much of the time.

Capability unit IIIe–4

This unit consists chiefly of well drained and moderately well drained soils that occur chiefly on the rounded tops of rolling hills on the uplands. The Tupelo soil is somewhat poorly drained. The slopes range from 2 to 6 percent. The surface layer is friable to very friable silt loam. The subsoil is silty clay or clay. The depth to soft, weathered shale is 16 to 48 inches. The soils are—

Conasauga silt loam, 2 to 6 percent slopes.
Conasauga silt loam, 2 to 6 percent slopes, eroded.
Rarden silt loam, 2 to 6 percent slopes.
Rarden silt loam, 2 to 6 percent slopes, eroded.
Sequoia silt loam, 2 to 6 percent slopes, eroded.
Tupelo silt loam, 2 to 6 percent slopes, eroded.

These soils are low to moderately low in natural fertility and are very strongly acid to neutral. Infiltration is moderately slow to moderate, and the available moisture capacity is low to very low. Plant roots can penetrate the subsoil, but permeability is moderately slow to slow. The organic-matter content is low. Tilth generally is poor, but in some areas it is fair to good. The range of moisture content within which these soils can be tilled without clodding or puddling is narrow. There are a few outcrops of limestone on the Conasauga and Tupelo soils.

Slightly less than 3 percent of the county is occupied by these soils. About 40 percent of the acreage is used for pasture; about 25 percent is cultivated; and the rest is wooded, mostly with mixed stands of hardwoods and pine. Some pastures have been improved by seeding and fertilizing. The principal crops are cotton, grain, sorghum, lespedeza for hay, and corn.

The soils in this unit are suited to a narrow or medium range of crops. They are not well suited to truck crops, corn, Coastal bermudagrass, or alfalfa, because of the shallow to moderately deep root zone and the fairly low available moisture capacity. They are better suited to early maturing crops than to crops that mature late in summer or early in fall. Small grain and most hay and pasture plants are suitable. The best suited row crops are cotton, grain sorghum, soybeans, and millet. Some of the better suited grasses are tall fescue, ryegrass, orchardgrass, and common bermudagrass.

These soils erode readily if cultivated. Control of water requires special attention. Terraces are difficult to construct because of the complex slopes, the small areas, and the position on ridgetops. Erosion can best be controlled by growing close-growing crops or grasses most of the time. Row crops should be grown infrequently. A rotation of a small grain and a mixture of grasses and legumes may be more profitable than a rotation that includes a row crop. All residues should be kept on the surface between growing seasons and on or near the surface during the season of crop production. Suitable cropping systems are—

1. 2 years of grain, followed by lespedeza; 2 years of corn or grain sorghum.
2. 2 years of grain, followed by lespedeza; 1 or 2 years of grain, followed by grain sorghum or soybeans.

These soils respond only moderately well to fertilization because of their relatively low available moisture capacity. Heavy applications of fertilizer are less profitable than on more friable, permeable soils, but all crops need phosphate, potash, and nitrogen. If well fertilized, legumes and grasses produce good yields, but these plants make little growth during dry seasons.

Surface runoff is the principal hazard if these soils are cultivated. Protection is important because, if the surface soil is lost through erosion, the subsoil has poor tilth and is very low in natural fertility. Cultivation on the contour, vegetated natural waterways, and the use of close-growing crops in the rotation are effective erosion control measures. Stripcropping is needed on some of the longer slopes.

Capability unit IIIe–6

This unit consists of well drained and moderately well drained soils that have a shallow root zone. These soils occur in small areas on the uplands and have slopes of 2 to 6 percent. The surface layer is shaly silt loam or gravelly fine sandy loam. The subsoil commonly is shaly silty clay loam but in places is gravelly clay loam, gravelly sandy clay loam, shaly silty clay, or silty clay. The depth to bedrock generally is about 12 to 20 inches but ranges to 30 inches in places. The soils are—

Conasauga shaly complex, 2 to 6 percent slopes.
Conasauga shaly complex, 2 to 6 percent slopes, eroded.
Lehew-Dekalb gravelly fine sandy loams, 2 to 6 percent slopes.
Montevallo shaly silt loam, 2 to 6 percent slopes.

These soils have moderate to rapid infiltration, low available moisture capacity, and low natural fertility. They are all very strongly acid, except some small areas of the Conasauga soils, which are mildly alkaline. The Conasauga soils have a clayey subsoil and slow permeability, whereas the other soils have moderately rapid permeability. Tilth ranges from fair to good, according to the amount of shale or sand in the surface layer.

These soils occupy slightly more than 1 percent of the county. About 75 percent of the acreage has been cultivated, but only about 30 percent is cultivated at this time. About 25 percent is used for pasture, most of which is unimproved; the rest is wooded. The principal crops are cotton, garden crops, corn, and grain sorghum.

The soils in this unit are suited to only a narrow range of crops. They are not well suited to row crops, because they are low in available moisture capacity and are droughty. They are best suited to grain sorghum, which can survive long dry periods, and oats, which can utilize the rain that falls in winter and early in spring. Yields of tall fescue, ryegrass, and sericea lespedeza are fair. Lespedeza, orchardgrass, and Coastal bermudagrass are poorly suited.

The hazard of erosion is moderate to severe because of slow to medium runoff. If crops are grown, a long rotation, in which a close-growing crop and a sod crop are grown about 3 to 4 years out of 5, is needed. Residues should be kept on or near the surface at all times. Suitable cropping systems are—

1. 1 year of grain, followed by lespedeza; 4 years of tall fescue or bahiagrass and white clover.
2. 3 years of grain, followed by lespedeza; 1 year of corn or grain sorghum.

The available moisture capacity is so low that large amounts of fertilizer cannot be used efficiently. Moderate fertilization is advisable. Pastures can be expected to produce good yields in fall and in spring. Mow or use appropriate herbicides to control weeds and brush in pastures that are adequately fertilized and otherwise well managed. Large amounts of chicken litter can be used in place of other fertilizers.

The loss of even a small amount of soil material is serious on these shallow soils. Consequently, runoff must be controlled. Keeping the soils in close-growing vegetation probably is the most effective way to control water erosion. If row crops are grown, suitable practices to help control runoff are cultivating on the contour, keeping natural drainageways in sod, and stripcropping long slopes.

Capability unit IIIw–2

This unit consists of somewhat poorly drained soils on low stream terraces. The slopes range from 0 to 6 percent. A fragipan at a depth of 15 to 36 inches is characteristic of most of these soils. The surface layer is friable to very friable silt loam and fine sandy loam. The subsoil is mottled silty clay loam. These soils are firm in the upper part of the subsoil to extremely firm and compact in the fragipan. The ones that have slopes of 0 to 2 percent are flooded occasionally for short periods. The soils are—

Taft silt loam, 0 to 2 percent slopes.
Tyler fine sandy loam, 0 to 2 percent slopes.
Tyler fine sandy loam, 2 to 6 percent slopes.
Whitwell silt loam, moderately wet, 0 to 2 percent slopes.
Whitwell silt loam, moderately wet, 2 to 6 percent slopes.

Permeability is moderate to moderately rapid, natural fertility is low to moderately low, and the reaction is very strongly acid. The available moisture capacity is low because of the clayey subsoil or the fragipan. During extremely wet seasons, there is a perched water table in the soils that have a fragipan. Tilth ranges from fair to good on the fine sandy loams.

These soils occupy about 3 percent of the county. A sizable acreage is idle or is reverting to pine. About 15 percent of the acreage is cultivated and is used mostly for corn or for lespedeza grown for hay; about 25 percent is pastured and is used mostly for tall fescue and white clover or native grasses; the rest is wooded.

The soils in this unit are suited to only a narrow range of crops. They are best suited to corn, grain sorghum, soybeans, and lespedeza. Soils that have slopes of 2 to 6 percent will produce low to moderate yields of oats and cotton but are better suited to pasture and hay plants. Except for Coastal bermudagrass, most locally grown grasses are suitable. Tall fescue is the most commonly grown grass.

Wetness is a greater hazard than erosion. A cropping system that will supply large quantities of organic matter improves tilth and increases fertility. All residues should be kept on or near the surface at all times. If row crops are grown, suitable cropping systems are—

1. Corn continuously.
2. Grain sorghum continuously.
3. Soybeans continuously.
4. A rotation of corn, grain sorghum, and soybeans.

These soils need moderately large to large quantities of plant nutrients, lime, and organic matter. Lime and fertilizer should be applied according to the results of soil tests.

Tillage and other field operations are restricted at times by wetness. Drainage ditches are needed in many places to remove excess surface water (fig. 10). The practicability of artificial drainage depends on such factors as availability of adequate outlets, cost of installation, and variety of crops to be grown.

Capability unit IIIw–3

This unit consists of somewhat poorly drained soils on level stream terraces, on valley floors on the uplands, and in depressions. The slopes range from 0 to 2 percent. The surface layer is friable silt loam. The subsoil is mottled clay, silty clay, or silty clay loam. It is extremely firm and generally is plastic. Bedrock is at a depth of 2 to 5 feet. The soils are—

Conasauga silt loam, 0 to 2 percent slopes.
Tupelo silt loam, 0 to 2 percent slopes.

Infiltration is moderate to moderately slow, permeability is moderately slow to slow, and the available moisture capacity is low to very low. Natural fertility is low to moderately low, and tilth is poor to fair and is difficult to improve. Plant roots can penetrate the sub-

Figure 10.—**Drainage ditch on Tyler fine sandy loam, 0 to 2-percent slopes. Corn in left background; recently seeded tall fescue along ditch.**

soil but do so very slowly. The reaction is very strongly acid in the surface layer to neutral or mildly alkaline in the subsoil.

The soils in this unit occupy more than 1 percent of the county. Most of the acreage is wooded or is idle. About 30 percent is pastured. Native grasses, tall fescue, and lespedeza are the principal plants.

These soils are poorly suited to row crops. They are suited to a medium range of pasture grasses and legumes. Grain sorghum and soybeans are the best suited cultivated crops; tall fescue, dallisgrass, ryegrass, and orchardgrass are the best suited grasses; and lespedeza and white clover are the best suited legumes.

Wetness is a moderate to severe hazard. Water stands on the surface for long periods during rainy seasons. The risk of damage to clean-cultivated crops or of failure of these crops is moderately high. Water-tolerant pasture grasses and legumes are better suited. Suitable cropping systems if row crops are grown are—

1. 1 year of grain sorghum; 2 years or more of lespedeza.
2. 1 year of soybeans; 2 to 3 years of tall fescuegrass and white clover.

Moderately high fertilization is required for all crops. Soybeans and pasture plants respond to lime. If annuals are grown, all residues should be kept on the surface between seasons of crop production and on or near the surface during the season of crop production to preserve tilth and to maintain fertility. Legumes need nitrogen only at time of planting.

Excess water is the principal hazard on these soils. Only such water-tolerant plants as soybeans, grain sorghum, white clover, or tall fescue are suitable. If these soils could be artificially drained, they would be suited to a medium range of crops. Artificial drainage, however, is not feasible, because of the clayey subsoil and lack of outlets. The lateral movement of water is slow. In some areas open ditches can be used to remove surface water.

765-730—65——5

Capability unit IVe-1

This unit consists of well-drained soils on uplands, high terraces, and foot slopes. The slopes range from 6 to 15 percent. On about 19 percent of the acreage, the surface layer is fine sandy loam or gravelly fine sandy loam; on the remaining acreage, which is severely eroded, it is fine sandy clay loam or silty clay loam. The subsoil commonly is silty clay loam or silty clay, but in places it is clay loam or sandy clay loam. The depth to shale and limestone is 4 to 12 feet. The soils are—

Allen fine sandy loam, 10 to 15 percent slopes.
Allen fine sandy loam, 10 to 15 percent slopes, eroded.
Allen fine sandy clay loam, 6 to 10 percent slopes, severely eroded.
Christian fine sandy loam, 10 to 15 percent slopes.
Christian fine sandy clay loam, 6 to 10 percent slopes, severely eroded.
Cumberland silty clay loam, 6 to 10 percent slopes, severely eroded.
Dewey silty clay loam, 6 to 10 percent slopes, severely eroded.
Farragut silty clay loam, 6 to 10 percent slopes, severely eroded.
Jefferson gravelly fine sandy loam, 10 to 15 percent slopes.
Nolichucky fine sandy loam, 10 to 15 percent slopes, eroded.
Waynesboro fine sandy loam, 10 to 15 percent slopes, eroded.
Waynesboro fine sandy clay loam, 6 to 10 percent slopes, severely eroded.

Infiltration ranges from moderately rapid to moderately slow. This wide range is caused by great variation in slope and in texture of the surface layer. These soils have rapid to medium surface runoff and are highly susceptible to sheet erosion. The surface layer is moderately permeable; the subsoil, which is dominantly moderately fine textured, is moderately permeable to moderately rapidly permeable. Although these soils have a deep root zone, the available moisture capacity generally is moderate because of the rapid to medium runoff and the large amount of clay in the subsoil. However, it ranges from high in the Allen soils to low in the Farragut soil. Natural fertility is low in most of the soils. Tilth generally is fair, but the soils tend to clod or puddle if worked when wet. All of the soils are very strongly acid.

The soils in this unit occupy more than 3 percent of the county. About 95 percent of the acreage has been cultivated, but now most of this acreage is idle or has reverted to pine, and only about 15 percent is cultivated. The most commonly grown crops are cotton, corn, small grain, lespedeza, and alfalfa. Pastures include such grasses and legumes as tall fescue, bermudagrass, native grasses, dallisgrass, orchardgrass, lespedeza, white clover, and hop clover.

These soils are suited to all of the commonly grown crops. They are well suited to alfalfa, Coastal bermudagrass, red clover, and other deep-rooted legumes. They are also well suited to common bermudagrass, tall fescue, ryegrass, dallisgrass, bahiagrass, white clover, and lespedeza. Crops require more careful management than on the soils in units IIIe-1 and IIIe-3 and are more difficult to establish.

Erosion is a severe to very severe hazard on these soils. Row crops should be grown not more than once in 4 to 6 years. All residues should be kept on the surface between growing seasons and on or near the surface during the season of crop production. Varying the depth of tillage and growing deep-rooted crops and legumes help

to prevent a hardened layer, or plowsole. Suitable cropping systems are—

1. 4 years of tall fescue; 1 year of corn; 1 year of cotton.
2. 3 years of Coastal bermudagrass; 1 year of corn.

All crops respond to moderately large and large applications of fertilizer. A complete fertilizer should be applied near the date of planting. Additional fertilizer is needed from time to time and should be applied according to crop needs and soil tests. Legumes need nitrogen only at time of planting.

On long slopes, surface runoff can be controlled by contour tillage, terraces, vegetated waterways, and stripcropping. Adequately fertilized close-growing crops are also effective in controlling runoff. Because the moisture supply normally is low late in summer and early in fall, late maturing crops are not so well suited as early maturing crops.

Capability unit IVe–2

This unit consists of well-drained soils that have many chert fragments on the surface and throughout the profile. The surface layer in most areas is cherty silt loam, but in a few small severely eroded areas it is cherty silty clay loam. The subsoil is firm to very firm cherty silty clay loam or silty clay. The depth to cherty limestone is 10 to 30 feet. The soils are—

Clarksville cherty silt loam, 10 to 15 percent slopes.
Fullerton cherty silt loam, 10 to 15 percent slopes.
Fullerton cherty silty clay loam, 6 to 10 percent slopes, severely eroded.

These soils have moderately rapid to rapid infiltration. The subsoil is rapidly permeable and is moderate to low in available moisture capacity. Tilth is fair because of the high content of chert in the plow layer. Natural fertility is low, and the reaction is very strongly acid.

The soils in this unit occupy less than 2 percent of the county. Most of the acreage is wooded. The rest is used mainly for pasture. Many pastures are unimproved. Corn, cotton, and hay are the principal crops. Lespedeza is the most common pasture plant.

These soils are suited to a medium range of crops. They are well suited to small grain and early truck crops and to most of the hay and pasture grasses. Yields of alfalfa are not high, and the stands are short lived. Yields of cotton, corn, grain sorghum, small grain, and soybeans are moderate if the soils are well managed. Tall fescue grows well, and orchardgrass and white clover can be grown if management is good.

Erosion is a severe to very severe hazard on these soils. A close-growing crop 3 or 4 years out of 5 helps to maintain tilth and to supply organic matter. Surface runoff can be partially controlled by close-growing crops. All residues should be kept on or near the surface at all times. Suitable cropping systems are—

1. 4 years of tall fescue; 1 or 2 years of row crops.
2. 4 years of sericea lespedeza; 1 or 2 years of row crops.

The soils in this unit are deficient in nitrogen, phosphorus, potassium, and calcium. Unless all crops are well fertilized, yields will be very low, and many crops will fail. The response to fertilization is in proportion to the available moisture. Therefore, crops utilize fertilizer best in spring and early in summer when there is sufficient moisture.

Cultivation is possible throughout a fairly wide range of moisture content. These soils generally are not susceptible to clodding or puddling when tilled, because of the small content of clay in the surface layer. To maintain productivity and to reduce soil losses, all cultivation and other farming operations should be done on the contour. Natural waterways should be kept in sod to prevent gullying. The complex slopes make terracing difficult in most areas. Parallel or contour stripcropping also helps to control runoff.

Capability unit IVe–3

This unit consists of well drained or moderately well drained soils of the uplands. The slopes range from 6 to 10 percent. In most places the surface layer is shaly silt loam, but on about 8 percent of the acreage it is gravelly fine sandy loam. The subsoil is friable to extremely firm shaly silty clay loam to gravelly fine sandy clay loam. The depth to bedrock is 12 to 36 inches. The soils are—

Conasauga shaly complex, 6 to 10 percent slopes, eroded.
Lehew-Dekalb gravelly fine sandy loams, 6 to 10 percent slopes.
Montevallo shaly silt loam, 6 to 10 percent slopes.

Infiltration is moderate to moderately rapid. Water moves rapidly through all of the soils except the Conasauga, which has a slowly permeable subsoil. These soils are low in natural fertility and low in available moisture capacity. They have a shallow root zone, are droughty, and have good to fair tilth. Some areas of the Conasauga soil are mildly alkaline; the other soils are very strongly acid.

The soils in this unit occupy less than 2 percent of the county. Most of the acreage is forested with cutover pine and deciduous trees. Some of the acreage is used for cotton, grain sorghum, corn, and hay plants. About 20 percent is used for pasture. Native grasses, lespedeza, and tall fescue are the most common pasture plants.

Because of droughtiness and shallowness, these soils are not well suited to row crops. They are better suited to small grain, which grows when moisture is most plentiful. They are less well suited to cotton and corn but produce fair yields of grain sorghum. Pastures that produce fair to medium yields can be established and maintained if tall fescue, sericea lespedeza, or other plants that have low fertility and low moisture requirements are grown. Because of the low available moisture capacity, the periods during which pasture vegetation grows and is palatable are limited.

These soils erode readily if cultivated and not protected. Row crops should be grown only in a very long rotation that includes a sod crop about 5 years out of 6. All residues should be kept on or near the surface at all times. Suitable cropping systems are—

1. 4 years of tall fescue; 2 years of corn.
2. 4 years of sericea lespedeza; 2 years of corn.

The response to fertilizer is fair to moderate. Most crops need moderate applications of lime. All plants need a complete fertilizer at seeding time. Large amounts of fertilizer cannot be utilized because of the small supply of moisture. Fair to medium yields of some close-growing crops and pasture plants can be obtained, but yields of

corn and alfalfa generally are too low to be profitable.

These soils are highly erodible, and they need to be protected from further soil loss. They are too shallow to be terraced, but farming on the contour and sodding natural waterways will help to control erosion. Stripcropping is practical on some slopes. The best protection, however, is permanent vegetation.

Capability unit IVe–5

In this unit are well-drained soils of the uplands. These soils developed in residuum weathered from shale and to some extent from limestone. The slopes range from 2 to 10 percent. The surface layer in most areas is silt loam, but in severely eroded areas it is silty clay loam. The subsoil is silty clay or silty clay loam. The depth to bedrock is 20 to 60 inches. The soils are—

Rarden silt loam, 6 to 10 percent slopes, eroded.
Sequoia silt loam, 6 to 10 percent slopes, eroded.
Sequoia silty clay loam, 2 to 6 percent slopes, severely eroded.

These soils have moderate to moderately slow infiltration, medium runoff, moderately slow permeability, and low to moderate available moisture capacity. They are low in organic-matter content and are very strongly acid. The effective root zone is moderately deep. Natural fertility has been lowered by accelerated erosion, but tilth generally is fair.

The soils in this unit occupy less than 1 percent of the county. About half of the acreage is wooded, about 20 percent is cultivated, and the rest is idle or is used for permanent pasture. Cotton, corn, and hay crops are the most common crops. Tall fescue, lespedeza, common bermudagrass, and native grasses are the common pasture plants.

These soils are poorly suited to cultivated crops, but they can be used for most of the commonly grown crops if management is good. Small grain is better suited than corn because it matures early, when moisture conditions are favorable. Corn, cotton, and grain sorghum grow fairly well in a long rotation. Alfalfa produces low to moderate yields for 2 to 3 years. Most hay and pasture plants are suitable. The best suited pasture plants are tall fescue, sericea lespedeza, dallisgrass, orchardgrass, and white clover.

These soils are subject to very severe erosion because of runoff. If well managed, they can be cultivated occasionally. If it is necessary to grow row crops, a 4- to 6-year rotation should be used. A suitable rotation consists of a row crop, a small grain, then about 5 years of a mixture of legumes and grasses for hay or pasture. Keep all residues on or near the surface. Suitable cropping systems are—

1. 4 years of sericea lespedeza; 1 or 2 years of corn.
2. 1 year of corn, followed by a small grain; 4 years of tall fescue and white clover.

All crops need moderately large applications of a complete fertilizer about seeding time. Because of poor moisture conditions, the response to fertilizer is only moderate, especially during periods of low rainfall. Pasture and hay plants need additional fertilizer annually. Legumes need nitrogen only at time of seeding.

Even if these soils are kept in pasture or in close-growing crops, extra care is needed to protect them from erosion. All farming operations should be on the contour, natural waterways should be kept in heavy sod, and some long slopes can be terraced and stripcropped on the contour.

Capability unit IVw–2

This unit consists of a poorly drained soil in depressions on the uplands. This soil is Guthrie silt loam, clay subsoil variant. The slopes range from 0 to 2 percent. The surface layer of mottled silt loam is underlain by mottled clay. The depth to limestone is 4 to 7 feet.

Infiltration is moderately slow, and movement of air and water through the soil is greatly restricted by the heavy subsoil. The available moisture capacity is low. Tilth is poor and is difficult to improve. This soil has only a narrow range of moisture content within which it can be cultivated. It has a shallow root zone because of the seasonally high water table and clayey subsoil. The reaction is very strongly acid in the upper part of the profile and neutral to alkaline in the lower part.

This soil occupies less than 1 percent of the county. Most of the acreage is wooded. A few areas are used for pasture. Pastures generally have a mixed cover of native grasses, tall fescue, carpetgrass, and dallisgrass. Row crops are not grown, because of wetness.

This soil would be poorly suited to row crops even if artificial drainage systems were installed. The most suitable crops are those that can tolerate excessive wetness, such as soybeans, grain sorghum, white clover, tall fescue, and annual lespedeza.

Lime and moderate applications of a complete fertilizer are needed for moderate yields of pasture plants. Because the moisture supply is erratic, the response to fertilization is not consistent. Plants make little growth during wet or dry periods.

The hazard of excess water is very severe. Artificial drainage is not feasible, because of slow lateral movement of water and lack of outlets.

Capability unit IVw–3

This unit consists of poorly drained soils on flood plains and low stream terraces. The soils on flood plains are flooded frequently; those on low stream terraces are flooded occasionally. The slopes range from 0 to 2 percent. The surface layer is mottled, friable silt loam. The subsoil is mottled silt loam to silty clay. The strong mottling and the gray color indicate the subsoil is saturated with water during parts of the year. The soils are—

Atkins silt loam.
Melvin silt loam.
Purdy silt loam.
Robertsville silt loam, clay subsoil variant.

Infiltration is moderate to moderately slow because of the medium-textured surface layer. Permeability in the subsoil is moderately slow to moderate. Natural fertility is low to moderate. The reaction is very strongly acid to neutral in the lower part of the subsoil. The root zone is shallow because of the high water table or, in some soils, because of the clayey subsoil.

The soils in this unit occupy less than 2 percent of the county. Most of the acreage is forested with hardwoods. About 30 percent is pastured. Native grasses or tall fescue are the most common pasture plants. A few areas of the Atkins and Melvin soils are used for corn.

These soils are suited to only a narrow range of crops. The most suitable crops are those that can tolerate excessive wetness, such as tall fescue, white clover, grain sorghum, and lespedeza. Some areas of the Atkins and Melvin soils have good outlets and can be artificially drained. These areas are moderately well suited to corn, grain sorghum, soybeans, and sorghum and can be used intensively because they are level and there is no erosion hazard.

Lime and a complete fertilizer are needed. Soil tests will indicate the amount required. Plants respond moderately well to fertilization but make little growth in the winter when the soils are wettest.

Frequent stream flooding and excess surface water are the principal hazards. Some of these soils, mainly the Atkins and Melvin, can be drained with a complete system of ditches, but improvement of the stream channel is needed in most areas.

Capability unit VIe–1

This unit consists of well-drained soils of the uplands and stream terraces. These soils have slopes of 10 to 25 percent and are slightly to severely eroded. They have a loamy surface layer and are cherty in some places and gravelly in other places. The subsoil is moderately fine textured or fine textured but is dominantly silty clay loam. The depth to bedrock ranges from 2½ to 20 feet or more, but averages about 6 feet. The soils are—

Allen fine sandy loam, 15 to 25 percent slopes.
Allen fine sandy clay loam, 15 to 25 percent slopes, severely eroded.
Christian fine sandy loam, 15 to 25 percent slopes.
Christian fine sandy clay loam, 10 to 15 percent slopes, severely eroded.
Christian fine sandy clay loam, 15 to 25 percent slopes, severely eroded.
Clarksville cherty silt loam, 15 to 25 percent slopes.
Clarksville cherty silt loam, 15 to 25 percent slopes, eroded.
Clarksville cherty silty clay loam, 10 to 15 percent slopes, severely eroded.
Dewey silty clay loam, 10 to 15 percent slopes, severely eroded.
Dewey silty clay loam, 15 to 25 percent slopes, severely eroded.
Farragut silty clay loam, 10 to 15 percent slopes, severely eroded.
Fullerton cherty silt loam, 15 to 25 percent slopes.
Fullerton cherty silty clay loam, 10 to 15 percent slopes, severely eroded.
Jefferson gravelly fine sandy loam, 15 to 25 percent slopes.
Waynesboro fine sandy loam, 15 to 25 percent slopes, eroded.
Waynesboro fine sandy clay loam, 10 to 15 percent slopes, severely eroded.
Waynesboro fine sandy clay loam, 15 to 25 percent slopes, severely eroded.

Infiltration ranges from moderately slow on the severely eroded, moderately steep soils to moderately rapid on the uneroded soils. Permeability is moderately slow to rapid. The available moisture capacity ranges from low on some severely eroded soils that have a fine-textured subsoil to high on uneroded soils that have a medium-textured subsoil. These soils have a thick root zone and are low to moderate in natural fertility. They are very strongly acid.

The soils in this unit occupy more than 8 percent of the county. Most of the acreage is wooded. The cleared acreage is used mainly for pasture, but a small acreage is used for corn, cotton, and hay crops.

Erosion is a very severe to moderate hazard because of the very strong and moderately steep slopes. Because of this hazard, these soils are not suited to row crops. Good pastures can be established and maintained if management is good. All of the common grasses and legumes can be grown, including tall fescue, bermudagrass, orchardgrass, sericea lespedeza, white clover, and annual lespedeza. Alfalfa will not control surface runoff.

These soils need lime and moderate applications of a complete fertilizer. They should not be plowed, except for the reseeding of pastures. Even then, tillage should be on the contour and long slopes should not be plowed their entire length. Runoff develops rapidly and sometimes destroys newly established pasture stands. Stands can best be established by seeding alternate contour strips over a period of a few years. Grazing needs to be carefully controlled.

Capability unit VIe–3

In this unit are well drained and moderately well drained soils that have a shallow to moderately deep root zone. These soils are on the uplands and have slopes of 6 to 15 percent. Much of the acreage is uneroded, but nearly 30 percent is severely eroded. In most areas the surface layer is shaly silt loam, but in some areas it is gravelly fine sandy loam, silt loam, silty clay loam, or shaly silty clay loam. The subsoil is dominantly shaly silty clay loam, but in places it is loam, silty clay loam, or silty clay. The soils are—

Conasauga shaly complex, 6 to 10 percent slopes, severely eroded.
Conasauga shaly complex, 10 to 15 percent slopes.
Klinesville shaly silt loam, 10 to 15 percent slopes.
Lehew-Dekalb gravelly fine sandy loams, 10 to 15 percent slopes.
Montevallo-Klinesville shaly silt loams, 10 to 15 percent slopes.
Montevallo-Klinesville shaly silt loams, 6 to 10 percent slopes, severely eroded.
Rarden silt loam, 10 to 15 percent slopes, eroded.
Rarden shaly silty clay loam, shallow, 6 to 10 percent slopes, severely eroded.
Rarden shaly silty clay loam, shallow, 10 to 15 percent slopes, severely eroded.
Sequoia silty clay loam, 6 to 10 percent slopes, severely eroded.
Sequoia silty clay loam, 10 to 15 percent slopes, severely eroded.

Infiltration is moderately slow to moderately rapid. Permeability is moderate in most of these soils but slow in the soils that have a clayey subsoil. These soils have low available moisture capacity and are droughty. They are low in natural fertility and low in organic-matter content. The reaction is very strongly acid in most areas but ranges to mildly alkaline in a few areas.

The soils of this unit occupy slightly more than 5 percent of the county. Most of the acreage is forested with mixed stands of hardwoods and pine. Most of the cleared acreage is used for unimproved pasture, but some small fields or patches are used for vegetables, corn, or hay crops. Native grasses and lespedeza are the most common pasture plants.

The hazard of erosion is high. Because of this hazard and the low available moisture capacity, these soils are not suited to row crops. They are suited to pasture. The best suited pasture and hay plants are sericea lespedeza, tall fescue, bermudagrass, and ryegrass. Lime and moderate applications of a complete fertilizer are needed. Soil tests will indicate the amount required.

Grasses and legumes are somewhat difficult to establish and to maintain because of lack of available moisture, shallow root zone, and, in some areas, severe sheet erosion.

These soils should not be plowed, except for seeding and reseeding of pasture or hay, and all tillage should be on the contour. Runoff develops rapidly, and newly established pasture is likely to be partly destroyed if an entire slope is cultivated at one time. Therefore, on long steep slopes, pasture should be established by seeding alternate contour strips over a period of a few years. This method will reduce the risk of erosion or of failure to establish a stand.

Capability unit VIIe–1

The soils in this unit are well drained and are cherty throughout the profile. The slopes are generally steep. Most of the acreage is uneroded, but a few acres are severely eroded. The surface layer in most areas is cherty silt loam. The subsoil is cherty silty clay loam or silty clay. The depth to cherty limestone is 15 to 30 feet or more. The soils are—

Fullerton cherty silt loam, 25 to 60 percent slopes.
Fullerton cherty silty clay loam, 15 to 25 percent slopes, severely eroded.

These soils have moderate to moderately slow infiltration, rapid permeability, and low available moisture capacity. They are low in natural fertility, are very strongly acid, and have a deep root zone.

The soils in this unit occupy less than 1 percent of the county. About 95 percent of the acreage is forested, mostly with hardwoods. A few small areas are pastured.

These soils are too steep, too cherty, or too severely eroded to be used for cultivated crops or pasture. Soils that are pastured are subject to erosion, are not productive of pasture plants, and are difficult to fertilize and to mow because of the steep slopes. The best use for these soils is forest.

Capability unit VIIe–3

This unit consists of gravelly or shaly soils of the uplands. These soils have slopes of 10 percent or more. Most are only slightly eroded, but some are severely eroded. The surface layer is gravelly, stony, or shaly silt loam, fine sandy loam, fine sandy clay loam, or silty clay loam. The subsoil is mainly shaly silty clay loam. The soils are—

Klinesville shaly silt loam, 15 to 25 percent slopes.
Klinesville shaly silt loam, 25 to 60 percent slopes.
Lehew-Dekalb gravelly fine sandy clay loams, 10 to 15 percent slopes, severely eroded.
Lehew-Ramsey gravelly fine sandy loams, 15 to 25 percent slopes.
Lehew-Ramsey gravelly fine sandy loams, 25 to 60 percent slopes.
Lehew-Ramsey gravelly fine sandy clay loams, 15 to 25 percent slopes, severely eroded.
Montevallo-Klinesville shaly silt loams, 15 to 25 percent slopes.
Montevallo-Klinesville shaly silt loams, 25 to 60 percent slopes.
Montevallo-Klinesville shaly silt loams, 10 to 15 percent slopes, severely eroded.
Montevallo-Klinesville shaly silt loams, 15 to 25 percent slopes, severely eroded.
Rarden shaly silty clay loam, shallow, 15 to 25 percent slopes, severely eroded.
Steekee stony fine sandy loam, 25 to 60 percent slopes.

The soils in this unit occupy about 30 percent of the county. About 90 percent of the acreage is wooded. The rest is mostly idle, but there are some areas of unimproved pasture. Corn, grain sorghum, or vegetables are grown in a few small, scattered areas.

These soils are not suited to cultivated crops, because of moderately steep or steep slopes, a very severe erosion hazard, or a stony or gravelly surface layer. Pasture plants are poorly suited, but such hardy perennial plants as tall fescue and sericea lespedeza can be grown in some areas. Moderately heavy applications of lime and fertilizer are needed if the soils are used for pasture. Carefully controlled grazing helps to increase yields and to reduce erosion losses. Tillage is difficult or impractical. If required, it should be done on the contour. These soils are best suited to trees.

Capability unit VIIe–4

This unit consists of one miscellaneous land type, Gullied land. All of the surface layer and most of the subsoil have been removed by erosion, and there is an intricate pattern of deep and shallow gullies on about 75 percent of the acreage.

Gullied land is low in natural fertility and contains little organic matter. It has poor tilth, rapid runoff, and low available moisture capacity.

The total acreage is very small, and all of it is either wooded or idle. Because of the very severe erosion hazard and numerous gullies, this land is unsuitable for cultivated crops and undesirable for pasture. It can be used for growing pine, but establishing any type of vegetation requires great skill, care, and patience.

Capability unit VIIs–1

This unit consists of well-drained to excessively drained, stony, rocky, or slaty soils of the uplands. The slopes range from 15 to 85 percent but are mostly between 25 and 60 percent. The depth to bedrock is 9 to 72 inches. These soils are loamy, but there are numerous stones, rocks, or fragments of slate throughout the soil material. The soils are—

Allen stony fine sandy loam, 25 to 60 percent slopes.
Bodine very stony silt loam, 15 to 25 percent slopes.
Bodine very stony silt loam, 25 to 60 percent slopes.
Colbert very rocky silt loam, 15 to 25 percent slopes.
Gilpin-Dekalb stony complex, 25 to 60 percent slopes.
Montevallo slaty silt loam, 25 to 60 percent slopes.
Montevallo slaty silt loam, 60 to 85 percent slopes.

These soils have moderate to slow infiltration and rapid to very rapid runoff. They have a shallow to deep root zone and are moderate, low, or very low in available moisture capacity. The available moisture capacity varies according to the volume of coarse fragments in the soil material and the depth to bedrock.

The soils in this unit make up slightly more than 8 percent of the county. All of the acreage is forested, mostly with hardwoods, but there are a few scattered pine trees.

These soils are unsuitable for crops or pasture. They are best suited to shortleaf pine or loblolly pine.

Estimated Yields

Table 7 gives estimated yields of the principal crops grown in the county, under two levels of management.

TABLE 7.--ESTIMATED AVERAGE ACRE YIELDS OF PRINCIPAL CROPS UNDER TWO LEVELS OF MANAGEMENT

[Yields in columns A are to be expected under common management, and those in columns B under improved management. Absence of figure indicates crop is not commonly grown on the soil]

Soil	Cotton		Corn		Grain sorghum		Oats		Alfalfa		Pasture of fescue and ladino clover 1/	
	A	B	A	B	A	B	A	B	A	B	A	B
	Lb. of lint	Lb. of lint	Bu.	Bu.	Bu.	Bu.	Bu.	Bu.	Tons	Tons	Cow-acre-days 2/	Cow-acre-days 2/
Allen fine sandy loam, 15 to 25 percent slopes	---	----	--	--	--	--	--	--	-----	----	105	220
Allen fine sandy loam, 2 to 6 percent slopes, eroded	375	1,000	40	75	40	75	50	110	3.0	5.0	140	285
Allen fine sandy loam, 6 to 10 percent slopes, eroded	325	900	35	65	35	65	45	100	2.8	5.0	130	260
Allen fine sandy loam, 10 to 15 percent slopes	275	700	25	50	25	55	35	80	2.5	4.5	120	230
Allen fine sandy loam, 10 to 15 percent slopes, eroded	250	675	25	45	22	35	35	75	2.4	4.3	110	175
Allen fine sandy clay loam, 6 to 10 percent slopes, severely eroded	250	700	18	40	25	40	30	65	2.3	4.0	100	210
Allen fine sandy clay loam, 15 to 25 percent slopes, severely eroded	---	---	--	--	--	--	--	--	----	----	75	140
Allen stony fine sandy loam, 25 to 60 percent slopes	---	---	--	--	--	--	--	--	----	----	----	----
Atkins silt loam	---	---	25	45	15	25	--	--	----	----	140	205
Bodine very stony silt loam, 25 to 60 percent slopes	---	---	--	--	--	--	--	--	----	----	----	----
Bodine very stony silt loam, 15 to 25 percent slopes	---	---	--	--	--	--	--	--	----	----	----	----
Captina silt loam, 0 to 2 percent slopes	375	650	35	75	30	50	45	65	2.5	4.5	125	215
Christian fine sandy loam, 2 to 6 percent slopes	425	800	40	85	30	55	50	105	3.0	5.0	150	260
Christian fine sandy loam, 6 to 10 percent slopes	400	780	37	80	28	52	45	100	2.5	4.0	135	230
Christian fine sandy loam, 10 to 15 percent slopes	375	700	35	65	24	45	35	80	2.1	3.5	125	220
Christian fine sandy loam, 15 to 25 percent slopes	---	---	--	--	--	--	--	--	----	----	105	190
Christian fine sandy clay loam, 2 to 6 percent slopes, severely eroded	350	750	35	75	26	50	30	70	2.5	4.0	140	250
Christian fine sandy clay loam, 6 to 10 percent slopes, severely eroded	300	700	32	60	22	45	30	65	2.1	3.5	125	220
Christian fine sandy clay loam, 10 to 15 percent slopes, severely eroded	---	---	--	--	--	--	--	--	----	----	100	175
Christian fine sandy clay loam, 15 to 25 percent slopes, severely eroded	---	---	--	--	--	--	--	--	----	----	90	160
Clarksville cherty silt loam, 2 to 6 percent slopes	340	550	30	55	32	49	41	65	2.5	4.0	140	250
Clarksville cherty silt loam, 6 to 10 percent slopes, eroded	325	500	25	55	30	47	35	60	2.3	3.8	130	245

Clarksville cherty silt loam, 10 to 15 percent slopes	250	375	20	35	19	31	--	--	----	----	95	175
Clarksville cherty silt loam, 15 to 25 percent slopes	---	---	--	--	--	--	--	--	----	----	80	140
Clarksville cherty silt loam, 15 to 25 percent slopes, eroded	---	---	---	--	--	--	--	--	----	----	75	125
Clarksville cherty silty clay loam, 10 to 15 percent slopes, severely eroded	---	---	--	--	--	--	--	--	----	----	85	150
Colbert very rocky silt loam, 15 to 25 percent slopes	---	---	--	--	--	--	--	--	----	----	----	---
Conasauga silt loam, 2 to 6 percent slopes	260	360	17	32	25	40	35	60	----	----	100	200
Conasauga silt loam, 0 to 2 percent slopes	---	---	--	--	--	--	--	--	----	----	120	235
Conasauga silt loam, 2 to 6 percent slopes, eroded	235	340	20	35	25	40	33	56	----	----	90	180
Conasauga shaly complex, 2 to 6 percent slopes	200	325	17	30	20	37	30	50	----	----	90	160
Conasauga shaly complex, 2 to 6 percent slopes eroded	200	325	17	30	20	37	30	50	----	----	90	160
Conasauga shaly complex, 6 to 10 percent slopes, eroded	160	---	12	--	12	30	20	--	----	----	70	130
Conasauga shaly complex,6 to 10 percent slopes, severely eroded	---	---	--	--	--	--	--	--	----	----	50	90
Conasauga shaly complex, 10 to 15 percent slopes	---	---	--	--	--	--	--	--	----	----	60	110
Cumberland loam, 2 to 6 percent slopes	600	1,100	50	75	40	65	50	95	4.0	6.0	225	350
Cumberland loam, 6 to 10 percent slopes, eroded	550	1,025	45	70	35	58	45	85	3.5	5.0	215	325
Cumberland silty clay loam, 2 to 6 percent slopes, severely eroded	500	875	35	60	32	52	42	80	3.0	4.2	160	240
Cumberland silty clay loam, 6 to 10 percent slopes, severely eroded	465	750	30	55	30	48	38	70	2.5	3.5	130	195
Dewey silt loam, 6 to 10 percent slopes, eroded	460	900	45	70	32	50	40	75	3.0	4.5	200	300
Dewey silt loam, 2 to 6 percent slopes, eroded	500	950	50	75	35	57	45	85	3.5	5.0	205	325
Dewey silty clay loam, 6 to 10 percent slopes, severely eroded	425	750	35	60	30	48	35	65	2.5	3.5	130	195
Dewey silty clay loam, 10 to 15 percent slopes, severely eroded	---	---	--	--	--	--	--	--	2.2	3.0	110	170
Dewey silty clay loam, 15 to 25 percent slopes, severely eroded	---	---	--	--	--	--	--	--	---	---	90	150
Ennis silt loam, local alluvium	305	500	35	65	30	45	50	85	2.5	4.2	140	230
Etowah loam, 0 to 2 percent slopes	550	1,100	50	80	45	65	50	100	4.1	5.8	210	330
Etowah loam, 2 to 6 percent slopes	500	1,050	47	75	40	60	47	90	4.0	5.5	200	320
Etowah loam, 6 to 10 percent slopes	475	900	40	65	32	50	40	80	3.0	4.5	190	300
Farragut silt loam, 2 to 6 percent slopes, eroded	450	750	35	60	25	45	35	75	3.5	5.0	125	255
Farragut silty clay loam, 2 to 6 percent slopes, severely eroded	400	675	30	55	25	45	32	70	3.2	4.5	105	215
Farragut silty clay loam, 6 to 10 percent slopes, severely eroded	350	625	25	50	20	40	27	60	3.0	4.0	90	200
Farragut silty clay loam, 10 to 15 percent slopes, severely eroded	---	---	--	--	--	--	--	--	---	---	80	175
Fullerton cherty silt loam, 15 to 25 percent slopes	---	---	--	--	--	--	--	--	---	---	90	175
Fullerton cherty silt loam, 2 to 6 percent slopes	400	750	35	80	30	55	50	90	2.9	5.0	150	260
Fullerton cherty silt loam, 6 to 10 percent slopes	380	725	30	70	30	45	45	70	2.3	3.8	120	240

See footnotes at end of table.

TABLE 7.--ESTIMATED AVERAGE ACRE YIELDS OF PRINCIPAL CROPS UNDER TWO LEVELS OF MANAGEMENT--Continued

Soil	Cotton		Corn		Grain sorghum		Oats		Alfalfa		Pasture of fescue and ladino clover 1/	
	A	B	A	B	A	B	A	B	A	B	A	B
	Lb. of lint	Lb. of lint	Bu.	Bu.	Bu.	Bu.	Bu.	Bu.	Tons	Tons	Cow-acre-days 2/	Cow-acre-days 2/
Fullerton cherty silt loam, 10 to 15 percent slopes	300	575	25	60	25	40	30	45	2.0	3.4	105	210
Fullerton cherty silt loam, 25 to 60 percent slopes	---	---	--	--	--	--	--	--	----	----	----	----
Fullerton cherty silty clay loam, 6 to 10 percent slopes, severely eroded	300	650	20	45	20	35	30	55	----	----	85	150
Fullerton cherty silty clay loam, 10 to 15 percent slopes, severely eroded	---	---	--	--	--	--	--	--	----	----	70	135
Fullerton cherty silty clay loam, 15 to 25 percent slopes, severely eroded	---	---	--	--	--	--	--	--	----	----	----	----
Gilpin-Dekalb stony complex, 25 to 60 percent slopes	---	---	--	--	--	--	--	--	----	----	----	----
Gullied land	---	---	--	--	--	--	--	--	----	----	----	----
Guthrie silt loam, clay subsoil variant	---	---	--	--	25	35	--	--	----	----	150	250
Hartsells fine sandy loam, 2 to 6 percent slopes	400	750	45	80	40	70	60	90	2.8	3.9	160	250
Hartsells fine sandy loam, 6 to 10 percent slopes	360	670	38	70	37	58	45	85	2.5	3.5	140	230
Huntington silt loam, acid variant, local alluvium	650	1,150	55	105	45	65	50	100	4.1	5.8	240	375
Jefferson gravelly fine sandy loam, 6 to 10 percent slopes	300	725	35	60	32	55	40	75	2.6	4.3	120	250
Jefferson gravelly fine sandy loam, 10 to 15 percent slopes	275	600	25	47	28	45	30	55	2.5	4.2	110	200
Jefferson gravelly fine sandy loam, 15 to 25 percent slopes	---	---	--	--	--	--	--	--	----	----	75	140
Klinesville shaly silt loam, 25 to 60 percent slopes	---	---	--	--	--	--	--	--	----	----	----	----
Klinesville shaly silt loam, 10 to 15 percent slopes	---	---	--	--	--	--	--	--	----	----	80	135
Klinesville shaly silt loam, 15 to 25 percent slopes	---	---	--	--	--	--	--	--	----	----	----	----
Landisburg cherty silt loam, 0 to 2 percent slopes	250	500	35	65	40	70	50	80	----	----	175	300
Landisburg cherty silt loam, 2 to 6 percent slopes	325	565	30	55	35	55	45	70	----	----	140	270
Landisburg cherty silt loam, 6 to 10 percent slopes	325	500	25	50	30	47	35	60	----	----	130	245
Leadville silt loam, 0 to 2 percent slopes	400	700	30	50	25	45	45	65	----	----	140	210
Leadville silt loam, 2 to 6 percent slopes	440	775	25	60	30	65	50	75	----	----	130	200
Lehew-Dekalb gravelly fine sandy loams, 10 to 15 percent slopes	---	---	--	--	--	--	--	--	----	----	75	135
Lehew-Dekalb gravelly fine sandy loams, 2 to 6 percent slopes	310	550	25	45	24	35	35	55	----	----	115	185

Lehew-Dekalb gravelly fine sandy loams, 6 to 10 percent slopes	285	510	20	38	21	33	30	55	----	----	98	170
Lehew-Dekalb gravelly fine sandy clay loams, 10 to 15 percent slopes, severely eroded	---	---	--	--	--	--	--	--	----	----	----	----
Lehew-Ramsey gravelly fine sandy loams, 15 to 25 percent slopes	---	---	--	--	--	--	--	--	----	----	65	110
Lehew-Ramsey gravelly fine sandy loams, 25 to 60 percent slopes	---	---	--	--	--	--	--	--	----	----	----	----
Lehew-Ramsey gravelly fine sandy clay loams, 15 to 25 percent slopes, severely eroded	---	---	--	--	--	--	--	--	----	----	----	----
Local alluvial land, moderately wet	---	---	45	100	40	75	35	60	----	----	210	375
Locust gravelly fine sandy loam, 2 to 6 percent slopes	375	650	35	60	30	50	45	65	----	----	125	215
Melvin silt loam	---	---	--	--	40	60	--	--	----	----	160	275
Monongahela fine sandy loam, 2 to 6 percent slopes	380	675	25	45	28	45	35	60	----	----	130	200
Monongahela fine sandy loam, 6 to 10 percent slopes	315	550	20	35	25	40	30	55	----	----	120	185
Monongahela gravelly silt loam, 2 to 6 percent slopes	340	500	22	40	25	43	--	--	----	----	130	200
Montevallo shaly silt loam, 2 to 6 percent slopes	240	375	20	35	25	40	22	40	----	----	100	175
Montevallo shaly silt loam, 6 to 10 percent slopes	210	325	17	30	16	30	20	40	----	----	90	160
Montevallo-Klinesville shaly silt loams, 15 to 25 percent slopes	---	---	--	--	--	--	--	--	----	----	----	----
Montevallo-Klinesville shaly silt loams, 10 to 15 percent slopes	---	---	--	--	--	--	--	--	----	----	80	135
Montevallo-Klinesville shaly silt loams, 25 to 60 percent slopes	---	---	--	--	--	--	--	--	----	----	----	----
Montevallo-Klinesville shaly silt loams, 6 to 10 percent slopes, severely eroded	---	---	--	--	--	--	--	--	----	----	75	130
Montevallo-Klinesville shaly silt loams, 10 to 15 percent slopes, severely eroded	---	---	--	--	--	--	--	--	----	----	----	----
Montevallo-Klinesville shaly silt loams, 15 to 25 percent slopes, severely eroded	---	---	--	--	--	--	--	--	----	----	----	----
Montevallo slaty silt loam, 60 to 85 percent slopes	---	---	--	--	--	--	--	--	----	----	----	----
Montevallo slaty silt loam, 25 to 60 percent slopes	---	---	--	--	--	--	--	--	----	----	----	----
Muse silt loam, 2 to 6 percent slopes, eroded	425	800	35	65	30	55	45	80	3.0	4.5	160	280
Muse silt loam, 2 to 6 percent slopes	475	875	38	70	38	70	50	85	3.0	4.5	175	300
Muse silt loam, 6 to 10 percent slopes, eroded	390	700	30	55	28	50	40	70	2.8	4.0	145	225
Nolichucky fine sandy loam, 2 to 6 percent slopes	375	1,000	40	75	35	65	50	95	3.0	5.0	150	295
Nolichucky fine sandy loam, 6 to 10 percent slopes	325	900	35	65	30	55	45	85	3.3	4.5	135	265
Nolichucky fine sandy loam, 10 to 15 percent slopes, eroded	275	700	30	55	28	50	35	80	3.0	4.0	120	230
Pope fine sandy loam	500	1,200	50	120	55	80	65	110	3.0	4.0	215	350
Pope shaly silt loam, local alluvium	575	1,000	45	100	40	65	45	85	3.5	4.5	225	350
Purdy silt loam	---	---	--	--	35	60	--	--	----	----	200	320
Rarden silt loam, 2 to 6 percent slopes, eroded	300	500	20	35	20	35	25	45	2.3	3.3	115	180

See footnotes at end of table.

TABLE 7.--ESTIMATED AVERAGE ACRE YIELDS OF PRINCIPAL CROPS UNDER TWO LEVELS OF MANAGEMENT--Continued

Soil	Cotton		Corn		Grain sorghum		Oats		Alfalfa		Pasture of fescue and ladino clover 1/	
	A	B	A	B	A	B	A	B	A	B	A	B
	Lb. of lint	Lb. of lint	Bu.	Bu.	Bu.	Bu.	Bu.	Bu.	Tons	Tons	Cow-acre-days 2/	Cow-acre-days 2/
Rarden silt loam, 2 to 6 percent slopes	350	600	25	40	25	40	30	50	2.5	3.5	125	200
Rarden silt loam, 6 to 10 percent slopes, eroded	250	450	18	32	17	30	22	40	2.0	3.0	90	160
Rarden silt loam, 10 to 15 percent slopes, eroded	---	---	--	--	--	--	--	--	----	----	80	150
Rarden shaly silty clay loam, shallow, 6 to 10 percent slopes, severely eroded	---	---	--	--	--	--	--	--	----	----	75	130
Rarden shaly silty clay loam, shallow, 10 to 15 percent slopes, severely eroded	---	---	--	--	--	--	--	--	----	----	60	135
Rarden shaly silty clay loam, shallow, 15 to 25 percent slopes, severely eroded	---	---	--	--	--	--	--	--	----	----	----	----
Robertsville silt loam, clay subsoil variant	---	---	--	--	30	45	--	--	----	----	190	300
Sandy and gravelly land	400	700	30	50	20	35	45	65	----	----	120	210
Sequatchie loam, 0 to 2 percent slopes	550	1,250	50	130	50	80	60	100	4.1	5.8	200	340
Sequatchie loam, 2 to 6 percent slopes	500	1,100	50	125	45	75	50	95	3.7	5.2	180	305
Sequatchie loam, 2 to 6 percent slopes, eroded	475	1,000	40	120	40	70	45	90	3.3	4.5	170	290
Sequoia silt loam, 2 to 6 percent slopes, eroded	340	650	30	55	35	60	35	65	2.5	3.2	140	250
Sequoia silt loam, 6 to 10 percent slopes, eroded	280	500	25	45	30	55	30	50	2.0	3.0	125	220
Sequoia silty clay loam, 2 to 6 percent slopes, severely eroded	215	450	15	35	25	45	20	40	----	----	110	215
Sequoia silty clay loam, 6 to 10 percent slopes, severely eroded	---	---	--	--	--	--	--	--	----	----	95	180
Sequoia silty clay loam, 10 to 15 percent slopes, severely eroded	---	---	--	--	--	--	--	--	----	----	85	150
Steekee stony fine sandy loam, 25 to 60 percent slopes	---	---	--	--	--	--	--	--	----	----	----	----
Stendal silt loam	---	---	45	100	40	75	35	60	----	----	210	375
Stendal-Philo silt loams	---	---	45	100	40	75	45	75	----	----	200	360
Taft silt loam, 0 to 2 percent slopes	225	475	20	35	25	40	35	65	----	----	140	285
Tupelo silt loam, 0 to 2 percent slopes	---	---	--	--	15	30	--	--	----	----	130	270
Tupelo silt loam, 2 to 6 percent slopes, eroded	175	325	25	45	20	35	30	50	----	----	125	240
Tyler fine sandy loam, 2 to 6 percent slopes	225	475	20	35	35	60	40	70	----	----	130	240
Tyler fine sandy loam, 0 to 2 percent slopes	---	---	30	50	30	40	--	--	----	----	140	285
Waynesboro fine sandy loam, 2 to 6 percent slopes, eroded	400	1,050	40	75	35	70	50	110	3.0	5.0	140	285
Waynesboro fine sandy loam, 6 to 10 percent slopes, eroded	375	950	35	65	30	55	40	85	2.8	4.5	130	260
Waynesboro fine sandy loam, 10 to 15 percent slopes, eroded	300	700	25	50	25	45	35	80	2.5	4.0	120	230

Waynesboro fine sandy loam, 15 to 25 percent slopes, eroded	---	---	--	--	--	--	--	--	----	----	90	175
Waynesboro fine sandy clay loam, 6 to 10 percent slopes, severely eroded	300	750	20	40	25	40	30	65	2.3	4.0	100	210
Waynesboro fine sandy clay loam, 10 to 15 percent slopes, severely eroded	---	---	--	--	--	--	--	--	----	----	75	140
Waynesboro fine sandy clay loam, 15 to 25 percent slopes severely eroded	---	---	--	--	--	--	--	--	----	----	80	150
Whitwell silt loam, 0 to 2 percent slopes	400	1,300	40	125	40	70	50	90	----	----	200	320
Whitwell silt loam, 2 to 6 percent slopes	375	900	35	110	40	70	50	90	----	----	190	305
Whitwell silt loam, moderately wet, 0 to 2 percent slopes	---	---	25	40	30	50	--	--	----	----	140	285
Whitwell silt loam, moderately wet, 2 to 6 percent slopes	---	---	20	35	35	60	40	70	----	----	130	240
Wolftever silt loam, concretionary variant, 2 to 6 percent slopes	350	600	35	60	30	55	45	70	----	----	140	330
Wolftever silt loam, concretionary variant, 0 to 2 percent slopes	300	550	40	75	35	60	50	80	----	----	175	350

1/ White clover may be substituted for ladino clover.

2/ Number of days in 1 year 1 acre will provide grazing for 1 animal unit (1 cow, horse, or steer; or 5 swine; or 7 sheep) without injury to the pasture.

In columns A are yields that can be expected under common management. In columns B are yields that can be expected under improved management. The figures are based on yields recorded in long-term experiments; on yields obtained on farms used for cooperative soil productivity management studies; and on estimates made by agronomists who have had experience with the crops and soils in Gordon County. The estimates are for soils that have not been irrigated. The estimates for soils subject to flooding do not reflect losses by flooding, because this hazard varies greatly from place to place.

No estimates are given if the soil is not commonly used for the specified crop or is not suited to this crop.

Management practices needed to obtain yields equal to those estimated in columns B are based on research findings. For all crops, they include the following:

Fertilization at planting, in accordance with the needs indicated by chemical soil tests and by past cropping and fertilization practices.
Use of high-yielding crop varieties that are suited to the area.
Adequate seedbed preparation.
Planting or seeding by suitable methods, at proper rates, and at the right time.
Inoculation of legumes.
Shallow cultivation of row crops.
Control of weeds, insects, and diseases.
Use of soil-conserving cropping systems.
Water management, if needed; sodding waterways; and cultivating on the contour, terracing, or stripcropping.
Protection from overgrazing.

Defined in the following paragraphs are some specific management practices needed to obtain yields estimated in columns B, for each of the principal crops in the county.

COTTON.—Three levels of management are defined for three different levels of estimated productivity.

Soils that have an estimated yield of 750 pounds of lint or more per acre are excellent for cotton. The requirements are—

90 to 120 pounds of nitrogen (N) and 60 to 150 pounds each of phosphoric acid (P_2O_5) and potash (K_2O).
30,000 to 50,000 plants per acre.
Effective insect-control program.

Soils that have an estimated yield of 500 to 750 pounds of lint per acre are good for cotton. The requirements are—

60 to 90 pounds of nitrogen (N) and 60 to 120 pounds each of phosphoric acid (P_2O_5) and potash (K_2O).
25,000 to 40,000 plants per acre.
Effective insect-control program.

Soils that have an estimated yield of 325 to 500 pounds of lint per acre are poor for cotton. They could be used more profitably for other crops. If used for cotton, the requirements are—

30 to 60 pounds of nitrogen (N) and 60 to 90 pounds each of phosphoric acid (P_2O_5) and potash (K_2O).
25,000 to 35,000 plants per acre.
Effective insect-control program.

Nitrogen can be supplied in the form of commercial fertilizer, barnyard or chicken manure, leguminous residue, or any combination of these. If commercial fertilizer is used, part of the nitrogen should be applied at planting time and the rest as a side application, immediately after chopping or when the cotton is from 4 to 6 inches high.

CORN.—Three levels of management are defined for three different levels of estimated productivity.

Soils that have an estimated yield of 80 bushels or more per acre are excellent for corn. The requirements are—

100 to 150 pounds of nitrogen (N) and 60 to 90 pounds each of phosphoric acid (P_2O_5) and potash (K_2O).
12,000 to 16,000 plants per acre.

Soils that have an estimated yield of 50 to 80 bushels per acre are good for corn. The requirements are—

32 to 60 pounds of nitrogen (N) and 40 to 60 pounds each of phosphoric acid (P_2O_5) and potash (K_2O).
9,000 to 12,000 plants per acre.

Soils that have an estimated yield of 30 to 50 bushels per acre are poor for corn. They could be used more profitably for other crops. The requirements are—

16 to 32 pounds of nitrogen (N) and 30 to 60 pounds each of phosphoric acid (P_2O_5) and potash (K_2O).
6,000 to 9,000 plants per acre.

Nitrogen can be supplied in the form of commercial fertilizer, barnyard or chicken manure, leguminous residue, or any combination of these.

Corn is also grown for silage. Generally, plants that yield 5 bushels of corn will produce about 1 ton of silage. For example, a soil that yields 100 bushels of corn per acre would produce approximately 20 tons of silage. However, the plant population normally is greater for silage, and sorghum may be planted with the corn. The rate of fertilization for silage is 120 to 160 pounds of nitrogen (N), 90 to 120 pounds of phosphoric acid (P_2O_5), and 90 to 150 pounds of potash (K_2O).

GRAIN SORGHUM.—Two levels of management are defined for two different levels of estimated productivity.

Soils that have an estimated yield of 50 bushels or more per acre are excellent for grain sorghum. The requirements are—

60 to 90 pounds of nitrogen (N) and 50 to 90 pounds each of phosphoric acid (P_2O_5) and potash (K_2O).
20,000 to 30,000 plants per acre.

Soils that have an estimated yield of 30 to 50 bushels per acre are good for grain sorghum. The requirements are—

30 to 60 pounds of nitrogen (N) and 30 to 60 pounds each of phosphoric acid (P_2O_5) and potash (K_2O).
15,000 to 20,000 plants per acre.

OATS.—Two estimated yield levels, based on amount and application date of nitrogen, are defined. Phosphoric acid and potash are needed but have less effect than nitrogen on oat yields.

Soils that have an estimated yield of 75 bushels or more per acre are excellent for oats (or wheat). The requirements are—

30 to 45 pounds of nitrogen (N) and 60 to 90 pounds each of phosphoric acid (P_2O_5) and potash (K_2O) at time of planting; 30 to 45 pounds of nitrogen (N) late in winter.

Soils that have an estimated yield of 40 to 75 bushels per acre are good for oats (or wheat). The requirements are—

16 to 24 pounds of nitrogen (N) and 30 to 60 pounds each of phosphoric acid (P_2O_5) and potash (K_2O) at time of planting; 16 to 24 pounds of nitrogen (N) late in winter.

ALFALFA.—Soils that have an estimated yield of 4.5 tons or more per acre are excellent for alfalfa. Soils that

have an estimated yield of 3 to 4.5 tons per acre are good for alfalfa. The requirements are—

30 pounds of nitrogen (N), 90 to 120 pounds each of phosphoric acid (P_2O_5) and potash (K_2O), 20 pounds of borax, and 1 to 3 tons of lime at time of seeding; 20 pounds of borax, 120 to 240 pounds of potash (K_2O), and 90 to 120 pounds of phosphoric acid (P_2O_5) annually thereafter, or in amounts indicated by soil tests; 1 ton of lime at least every 2 or 3 years.
Proper mowing, and control of grazing (do not cut hay between about September 15th and date of first frost).
Effective insect-control program.

FESCUE, LADINO CLOVER, AND OTHER WHITE CLOVERS.—For soils on which the yield is 250 cow-acre-days or more, the requirements are—

66 to 140 pounds of nitrogen (N), depending on effectiveness of the clover in furnishing nitrogen to the grass; 60 to 120 pounds each of phosphoric acid (P_2O_5) and potash (K_2O); 1 ton of lime every 3 years, or lime as needed, in amounts indicated by soil tests.
Mowing to control excessive growth and weeds.

For soils that have an estimated yield of less than 250 cow-acre-days, the requirements are—

32 to 66 pounds of nitrogen (N), depending on effectiveness of the clover in furnishing nitrogen for the grass; 40 to 80 pounds each of phosphoric acid (P_2O_5) and potash (K_2O); 1 ton of lime every 3 years, or lime as needed, in amounts indicated by soil tests.
Mowing to control excessive growth and weeds.

If poultry manure is applied at the rate of 8 tons per acre or more, no other fertilizer is needed.

No yield estimates have been given for soils in class VII. On steep and very steep soils, the hazard of erosion is very severe between the period of seedbed preparation and the establishment of sod. Pastures on such soils normally are difficult to mow and to fertilize. Generally, over a period of years, forestry offers more profitable returns than pasture on these soils.

The number of cow-acre-days of grazing was computed by estimating, first, the yield of air-dry clipped forage in tons per acre. About one-third less forage will be removed by grazing than by clipping for hay or silage. It was assumed that an animal unit would consume the equivalent of 25 to 30 pounds of air-dry grass-clover mixture per day. The estimated yield was converted to cow-acre-days of grazing by converting tons of air-dry clipped forage to pounds, multiplying this figure by two-thirds, and dividing the result by 25. The tons of air-dry forage can be computed from table 7 by dividing the number of cow-acre-days by 53.

Woodland[4]

This section discusses the potential productivity and the limitations of the soils of the county for wood crops, by woodland suitability groups. It also contains a brief description of the kind and the extent of the woodlands in the county.

Gordon County was originally forested with mixed stands of upland oaks, chestnut, hickory, sycamore, ash, yellow-poplar, shortleaf pine, Virginia pine, and white pine. By 1900, most of the original stands had been cut. Since then, repeated cuttings have been heavy.

About 130,600 acres, or about 57 percent of the total land area of the county, is forested. Of this, 6,800 acres is in national forest, and about 45,000 acres is owned by pulp and paper industries. Except for chestnut, the present forest consists of species similar to that of the original, but the hardwoods are mostly of low quality. The second-growth pine stands are important in furnishing wood for local industries. Sawtimber and pulpwood are the most important forest products.

Woodland suitability groups

The soils of Gordon County have been rated on the basis of their performance when used to produce wood crops and have been placed in woodland suitability groups on the basis of these ratings. Each group consists of soils that have about the same suitability for wood crops, require about the same management, and have about the same potential productivity.

Listed in table 8 and described separately in the text are the 10 woodland suitability groups in the county. Table 8 summarizes the performance ratings for each group and lists the mapping symbols of the soils in each group. Gullied land was not placed in a woodland suitability group because of its variability.

Some of the more important soil-related factors considered in this grouping are explained in the following paragraphs.

Productivity.—This is an indication of the amount of a given wood crop that a given soil can produce under a specified level of management. It is expressed as the site index, which is the average height, in feet, that the best (dominant and codominant) trees of a given species, growing on the specified soil, will reach in 50 years. The average site indexes given in this report are based on measurements of trees of different species. Table 8 gives the site indexes for the principal kinds of trees on the soils of each woodland group and, in addition, the average annual growth in cords of rough wood.

Plant competition.—This refers to the rate of invasion by unwanted trees, shrubs, and vines when openings are made in the canopy. Competition is *slight* if it does not prevent adequate natural regeneration and early growth or interfere with the normal development of planted seedlings. Competition is *moderate* if it delays the establishment and slows the growth of seedlings, either naturally occurring or planted, but does not prevent the eventual development of a fully stocked, normal stand. Competition is *severe* if it prevents adequate restocking, either natural or artificial, without intensive preparation of the site and without special maintenance practices, including weeding.

Equipment limitation.—Some soil characteristics and topographic features restrict or prohibit the use of conventional equipment for planting and harvesting wood crops, for constructing roads, for controlling unwanted vegetation, and for controlling fires. The limitation is *slight* if there is little or no restriction on the type of equipment that can be used or the time of the year that equipment can be used. The limitation is *moderate* if the use of equipment is restricted by one or more unfavorable characteristics, such as slope, stones or other obstructions, seasonal wetness, instability, or risk of injury to roots of trees. The limitation is *severe* if special equipment is needed or the use of such equipment is severely restricted by one or more unfavorable soil characteristics.

[4] NORMAN E. SANDS, forester, Soil Conservation Service, assisted in writing this section.

TABLE 8.--WOODLAND SUITABILITY GROUPS, POTENTIAL PRODUCTIVITY, AND

[Estimates of productivity and ratings of site factors based on Soil Survey

Woodland suitability group	Estimated potential productivity		
	Commercial trees	Site index 1/	Annual growth 2/
			Cords per acre
Group 1: Deep, well-drained soils with medium-textured to fine-textured subsoil; on uplands, terraces, and toe slopes. AaB2, AaC2, AaD2, AaD, AaE, CDB, CDC, CDD, CDE, CUB, CUC2, DdB2, DdC2, EdA, EdB, EdC, FfB2, FmB, FmC, FmD, FmE, FmF, HGB, HGC, JaC, JaD, JaE, MeB, MeB2, MeC2, NbB, NbC, NbD2, SaA, SaB, SaB2, WbC2, WbB2, WbD2, WbE2.	Loblolly pine---- Shortleaf pine--- Virginia pine---- White pine------- White oak-------- Red oak----------	79 67 77 96 70 80	1.3 .9 1.3 1.8 .6 .7
Group 2: Deep, well-drained, severely eroded, medium-textured to fine-textured soils on uplands, terraces, and toe slopes. AbC3, AbE3, CEB3, CEC3, CED3, CEE3, CVB3, CVC3, DeC3, DeD3, DeE3, FgB3, FgC3, FgD3, FnC3, FnD3, FnE3, WcC3, WcD3, WcE3.	Loblolly pine---- Shortleaf pine--- Virginia pine---- White pine------- Red oak----------	80 81 81 100 80	1.3 1.6 1.3 2.0 .7
Group 3: Moderately deep, well drained and moderately well drained, medium-textured soils on uplands, toe slopes, and terraces. CHB, CHC2, CHD, CHE, CHE2, LbB, LbC, LbD, LkB, MaB, MaC, MbB, RmB, RmB2, RmC2, RmD2, SbB2, SbC2.	Loblolly pine---- Shortleaf pine--- Virginia pine---- Red oak----------	81 66 78 80	1.3 1.3 1.3 .7
Group 4: Moderately deep, well drained and moderately well drained, moderately fine textured and fine textured soils on uplands. CID3, LLD3, RnC3, RnD3, RnE3, ScB3, ScC3, ScD3.	Virginia pine---- Loblolly pine---- Shortleaf pine--- Red oak----------	67 64 60 70	1.2 1.0 1.1 .6
Group 5: Moderately deep to shallow, well-drained stony soils on uplands and toe slopes. AyF, BzE, BzF, GDF, LaE, LaF, LhE3, MfF, MfG.	White pine------- Virginia pine---- Loblolly pine---- Shortleaf pine---	90 77 76 66	1.7 1.3 1.2 1.3
Group 6: Deep, well-drained, chiefly medium-textured soils on toe slopes, in depressions, and on flood plains. Ens, HXA, Pop, Pos.	Yellow-poplar---- White oak-------- White ash-------- Green ash-------- White pine------- Loblolly pine----	120 80 80 80 100 90	2.0 .7 1.1 1.1 2.0 1.5
Group 7: Moderately deep, moderately well drained and somewhat poorly drained, medium-textured and moderately fine textured soils on stream terraces, flood plains, and toe slopes. CBA, LIA, LIB, LIC, LJA, LJB, Led, Spg, Stl, Spl, TwA, TyA, TyB, WdA, WdB, WqA, WqB, WfA, WfB.	Virginia pine---- Loblolly pine---- Shortleaf pine---	85 76 64	1.4 1.2 1.3
Group 8: Deep, poorly drained, medium-textured to fine-textured soils on flood plains and low stream terraces. Atk, Gut, Mel, Pur, Rob.	Sycamore--------- Sweetgum--------- Green ash--------	90 90 80	1.6 1.7 1.1

See footnotes at end of table.

RATINGS OF MAJOR LIMITATIONS AND HAZARDS AFFECTING MANAGEMENT

Interpretations for Woodland Conservation, Georgia Progress Report 1961 (5)]

Other soil-related site factors					Preferred species	
Plant competition	Equipment limitation	Seedling mortality	Erosion hazard	Windthrow hazard	Native trees	Planted trees
Moderate-----	Slight to moderate.	Slight----	Slight to moderate.	Slight------	Pine and oak---	Loblolly pine, white pine, shortleaf pine.
Slight------	Slight to moderate.	Moderate--	Severe-------	Moderate to severe.	Pine (pure stands) or pine and oak.	Loblolly pine, shortleaf pine, Virginia pine.
Moderate----	Moderate to severe.	Moderate--	Moderate-----	Slight------	Pine (pure stands) or pine and oak.	Loblolly pine, Virginia pine, white pine.
Slight------	Moderate to severe.	Moderate--	Severe-------	Moderate to severe.	Pine (pure stands) or pine and oak.	Virginia pine, loblolly pine.
Moderate to severe.	Moderate to severe.	Slight to moderate.	Moderate to severe.	Moderate to severe.	Pine (pure stands)	Virginia pine, shortleaf pine.
Severe------	Slight-----	Slight----	Slight-------	Slight------	Yellow-poplar, white pine, loblolly pine.	Yellow-poplar, loblolly pine, white pine.
Severe------	Moderate---	Slight----	Slight-------	Slight------	Virginia pine, loblolly pine, yellow-poplar.	Yellow-poplar, loblolly pine, white pine.
Severe-----	Severe-----	Moderate--	Slight-------	Slight------	Sycamore, sweetgum, green ash	Sycamore, sweetgum.

TABLE 8.--WOODLAND SUITABILITY GROUPS, POTENTIAL PRODUCTIVITY, AND RATINGS OF

Woodland suitability group	Estimated potential productivity		
	Commercial trees	Site index 1/	Annual growth 2/
			Cords per acre
Group 9: Deep to shallow, somewhat poorly drained and moderately well drained, medium-textured to fine-textured soils on uplands and low stream terraces. CRA, CRB, CRB2, CSB, CSC2, CSB2, CSD, CSC3, TxA, TxB2.	Loblolly pine----	77	1.3
	Shortleaf pine---	76	1.5
Group 10: Well-drained, medium-textured to fine-textured soils with shallow root zone; on uplands. CME, KjD, KjE, KjF, MdB, MdC, McC3, McD, McD3, McE, McE3, McF, SdF.	Virginia pine----	70	1.2
	Loblolly pine----	68	1.1
	Shortleaf pine---	56	1.0

1/ Average height of dominant and codominant trees in stands at 50 years of age.

2/ In fully stocked stands without intensive management. Adapted from data in USDA Misc. Pub. No. 50 (9),

Seedling mortality.—This refers to the expected loss of seedlings as a result of unfavorable soil characteristics or topographic features, not as a result of plant competition. Even if healthy seedlings of suitable species are correctly planted or occur naturally in adequate numbers, some will not survive if conditions are unfavorable. Ratings are based on mortality of seedlings among the number normally planted for adequate stocking. *Slight* mortality is the loss of less than 25 percent of the seedlings; *moderate*, between 25 and 50 percent; and *severe*, more than 50 percent.

Erosion hazard.—Woodland can be protected from erosion by choosing the kinds of trees, by adjusting the rotation age and cutting cycles, by using special techniques in management, and by carefully constructing and maintaining roads, trails, and landings.

Erosion hazard is rated according to the risk of erosion on well-managed woodland that is not protected by special practices. It is *slight* where a small loss of soil is expected. Generally, erosion is slight if slopes range from 0 to 2 percent and runoff is slow or very slow. The erosion hazard is *moderate* where there would be a moderate loss of soil if runoff is not controlled and the vegetative cover is not adequate for protection. It is *severe* where steep slopes, rapid runoff, slow infiltration and permeability, and past erosion make the soil susceptible to severe erosion.

Windthrow hazard.—Soil characteristics affect the development of tree roots and the firmness that the roots anchor the tree in the soil so that it resists the force of the wind. Root development may be prevented by a high water table or by an impermeable layer. The protection of surrounding trees also affects windthrow hazard. Knowing the degree of this hazard is important when choosing trees for planting and when planning release cuttings or harvest cuttings.

Windthrow hazard depends on the development of roots and on the ability of the soils to hold trees firmly in the soil. If the hazard is *slight*, the trees are firmly rooted and will not fall over in a normal wind. If *moderate*, roots develop enough to hold the trees firmly, except when the soil is excessively wet and the wind is strong. Windthrow hazard is *severe* if roots do not provide enough stability to prevent the trees from blowing over when they are not protected by other trees.

Preferred species.—This indicates which species of trees ought to be favored in the management of existing stands and which are suitable for planting. The species are listed in table 8 in order of priority.

WOODLAND SUITABILITY GROUP 1

This group consists of deep, well-drained soils on uplands, terraces, and toe slopes. The available moisture capacity is moderate to high for most of the soils but low for the steep cherty soils. The soils are—

AaB2	Allen fine sandy loam, 2 to 6 percent slopes, eroded.
AaC2	Allen fine sandy loam, 6 to 10 percent slopes, eroded.
AaD2	Allen fine sandy loam, 10 to 15 percent slopes, eroded.
AaD	Allen fine sandy loam, 10 to 15 percent slopes.
AaE	Allen fine sandy loam, 15 to 25 percent slopes.
CDB	Christian fine sandy loam, 2 to 6 percent slopes.
CDC	Christian fine sandy loam, 6 to 10 percent slopes.
CDD	Christian fine sandy loam, 10 to 15 percent slopes.
CDE	Christian fine sandy loam, 15 to 25 percent slopes.
CUB	Cumberland loam, 2 to 6 percent slopes.
CUC2	Cumberland loam, 6 to 10 percent slopes, eroded.
DdB2	Dewey silt loam, 2 to 6 percent slopes, eroded.
DdC2	Dewey silt loam, 6 to 10 percent slopes, eroded.
EdA	Etowah loam, 0 to 2 percent slopes.
EdB	Etowah loam, 2 to 6 percent slopes.
EdC	Etowah loam, 6 to 10 percent slopes.
FfB2	Farragut silt loam, 2 to 6 percent slopes, eroded.
FmB	Fullerton cherty silt loam, 2 to 6 percent slopes.
FmC	Fullerton cherty silt loam, 6 to 10 percent slopes.
FmD	Fullerton cherty silt loam, 10 to 15 percent slopes.

MAJOR LIMITATIONS AND HAZARDS AFFECTING MANAGEMENT--Continued

Other soil-related site factors					Preferred species	
Plant competition	Equipment limitation	Seedling mortality	Erosion hazard	Windthrow hazard	Native trees	Planted trees
Moderate----	Moderate---	Moderate--	Moderate----	Moderate----	Loblolly pine, shortleaf pine.	Loblolly pine, shortleaf pine.
Moderate----	Moderate to severe.	Moderate to severe.	Severe------	Moderate to severe.	Virginia pine, loblolly pine, shortleaf pine.	Shortleaf pine, loblolly pine.

USDA Tech. Bul. 560 (10), N. C. State Tech. Bul. 100 (6), and Forestry Hdb., Soc. Amer. Foresters (7).

FmE Fullerton cherty silt loam, 15 to 25 percent slopes.
FmF Fullerton cherty silt loam, 25 to 60 percent slopes.
HGB Hartsells fine sandy loam, 2 to 6 percent slopes.
HGC Hartsells fine sandy loam, 6 to 10 percent slopes.
JaC Jefferson gravelly fine sandy loam, 6 to 10 percent slopes.
JaD Jefferson gravelly fine sandy loam, 10 to 15 percent slopes.
JaE Jefferson gravelly fine sandy loam, 15 to 25 percent slopes.
MeB Muse silt loam, 2 to 6 percent slopes.
MeB2 Muse silt loam, 2 to 6 percent slopes, eroded.
MeC2 Muse silt loam, 6 to 10 percent slopes, eroded.
NbB Nolichucky fine sandy loam, 2 to 6 percent slopes.
NbC Nolichucky fine sandy loam, 6 to 10 percent slopes.
NbD2 Nolichucky fine sandy loam, 10 to 15 percent slopes, eroded.
SaA Sequatchie loam, 0 to 2 percent slopes.
SaB Sequatchie loam, 2 to 6 percent slopes.
SaB2 Sequatchie loam, 2 to 6 percent slopes, eroded.
WbB2 Waynesboro fine sandy loam, 2 to 6 percent slopes, eroded.
WbC2 Waynesboro fine sandy loam, 6 to 10 percent slopes, eroded.
WbD2 Waynesboro fine sandy loam, 10 to 15 percent slopes, eroded.
WbE2 Waynesboro fine sandy loam, 15 to 25 percent slopes, eroded.

The average site index is 96 for white pine, 79 for loblolly pine, 77 for Virginia pine, 67 for shortleaf pine, 70 for white oak, and 80 for red oak.

Erosion is a problem on improperly located roads and in unprotected areas where slopes are more than 10 percent. Plantings on slopes of more than 15 percent should be on the contour. Competition from unwanted trees, shrubs, and vines is moderate if openings are made in the canopy. Removing unwanted trees and shrubs allows seedlings to become established more quickly and to grow more rapidly. The equipment limitation is moderate on slopes of more than 15 percent. Windthrow and seedling mortality are only slight hazards.

WOODLAND SUITABILITY GROUP 2

This group consists of deep, well-drained, severely eroded soils on uplands, terraces, and toe slopes. The slopes range from 2 to 25 percent. Runoff is medium to very rapid, and the available moisture capacity is low to moderate. The soils are—

AbC3 Allen fine sandy clay loam, 6 to 10 percent slopes, severely eroded.
AbE3 Allen fine sandy clay loam, 15 to 25 percent slopes, severely eroded.
CEB3 Christian fine sandy clay loam, 2 to 6 percent slopes, severely eroded.
CEC3 Christian fine sandy clay loam, 6 to 10 percent slopes, severely eroded.
CED3 Christian fine sandy clay loam, 10 to 15 percent slopes, severely eroded.
CEE3 Christian fine sandy clay loam, 15 to 25 percent slopes, severely eroded.
CVB3 Cumberland silty clay loam, 2 to 6 percent slopes, severely eroded.
CVC3 Cumberland silty clay loam, 6 to 10 percent slopes, severely eroded.
DeC3 Dewey silty clay loam, 6 to 10 percent slopes, severely eroded.
DeD3 Dewey silty clay loam, 10 to 15 percent slopes, severely eroded.
DeE3 Dewey silty clay loam, 15 to 25 percent slopes, severely eroded.
FgB3 Farragut silty clay loam, 2 to 6 percent slopes, severely eroded.
FgC3 Farragut silty clay loam, 6 to 10 percent slopes, severely eroded.
FgD3 Farragut silty clay loam, 10 to 15 percent slopes, severely eroded.
FnC3 Fullerton cherty silty clay loam, 6 to 10 percent slopes, severely eroded.
FnD3 Fullerton cherty silty clay loam, 10 to 15 percent slopes, severely eroded.
FnE3 Fullerton cherty silty clay loam, 15 to 25 percent slopes, severely eroded.
WcC3 Waynesboro fine sandy clay loam, 6 to 10 percent slopes, severely eroded.

WcD3 Waynesboro fine sandy clay loam, 10 to 15 percent slopes, severely eroded.
WcE3 Waynesboro fine sandy clay loam, 15 to 25 percent slopes, severely eroded.

The average site index is 100 for white pine, 81 for shortleaf pine, 81 for Virginia pine, 80 for loblolly pine, and 80 for red oak.

Erosion is a severe hazard. Littleleaf disease is prevalent in eroded areas. Windthrow may occur in open stands. Seedling mortality is moderate, and competition from unwanted trees, shrubs, and vines is slight. The use of equipment is limited on the steeper slopes.

WOODLAND SUITABILITY GROUP 3

This group is made up of moderately deep, well drained and moderately well drained soils on the uplands. The slopes range from 2 to 25 percent. The available moisture capacity is low to moderate. The soils are—

CHB Clarksville cherty silt loam, 2 to 6 percent slopes.
CHC2 Clarksville cherty silt loam, 6 to 10 percent slopes, eroded.
CHD Clarksville cherty silt loam, 10 to 15 percent slopes.
CHE Clarksville cherty silt loam, 15 to 25 percent slopes.
CHE2 Clarksville cherty silt loam, 15 to 25 percent slopes, eroded.
LbB Lehew-Dekalb gravelly fine sandy loams, 2 to 6 percent slopes.
LbC Lehew-Dekalb gravelly fine sandy loams, 6 to 10 percent slopes.
LbD Lehew-Dekalb gravelly fine sandy loams, 10 to 15 percent slopes.
LKB Locust gravelly fine sandy loam, 2 to 6 percent slopes.
MaB Monongahela fine sandy loam, 2 to 6 percent slopes.
MaC Monongahela fine sandy loam, 6 to 10 percent slopes.
MbB Monongahela gravelly silt loam, 2 to 6 percent slopes.
RmB Rarden silt loam, 2 to 6 percent slopes.
RmB2 Rarden silt loam, 2 to 6 percent slopes, eroded.
RmC2 Rarden silt loam, 6 to 10 percent slopes, eroded.
RmD2 Rarden silt loam, 10 to 15 percent slopes, eroded.
SbB2 Sequoia silt loam, 2 to 6 percent slopes, eroded.
SbC2 Sequoia silt loam, 6 to 10 percent slopes, eroded.

The average site index is 81 for loblolly pine, 78 for Virginia pine, 66 for shortleaf pine, and 80 for red oak.

Conventional equipment can be used only to a limited extent on the steeper slopes. Erosion is a moderate hazard, particularly on unprotected slopes of more than 15 percent and on improperly located roads, trails, and yarding areas on slopes of more than 10 percent. Competition from unwanted trees, shrubs, and vines is moderate if openings are made in the canopy. Removing this unwanted vegetation allows seedlings to become established more quickly and to grow more rapidly. Seedling mortality is moderate because of the low to moderate available moisture capacity. The windthrow hazard is slight.

WOODLAND SUITABILITY GROUP 4

This group consists of moderately deep, well drained and moderately well drained, severely eroded soils on the uplands. The available moisture capacity is low. The slopes range from 2 to 25 percent. The soils are—

ClD3 Clarksville cherty silty clay loam, 10 to 15 percent slopes, severely eroded.
LLD3 Lehew-Dekalb gravelly fine sandy clay loams, 10 to 15 percent slopes, severely eroded.
RnC3 Rarden shaly silty clay loam, shallow, 6 to 10 percent slopes, severely eroded.
RnD3 Rarden shaly silty clay loam, shallow, 10 to 15 percent slopes, severely eroded.
RnE3 Rarden shaly silty clay loam, shallow, 15 to 25 percent slopes, severely eroded.
ScB3 Sequoia silty clay loam, 2 to 6 percent slopes, severely eroded.
ScC3 Sequoia silty clay loam, 6 to 10 percent slopes, severely eroded.
ScD3 Sequoia silty clay loam, 10 to 15 percent slopes, severely eroded.

The average site index is 67 for Virginia pine, 64 for loblolly pine, 60 for shortleaf pine, and 70 for red oak.

The equipment limitation is severe on the steeper slopes and in some gullied areas. Erosion is a severe hazard on uprotected slopes. In open stands, shortleaf pine and Virginia pine may be affected by windthrow. Competition from unwanted trees and shrubs is slight. Seedling mortality is moderate.

WOODLAND SUITABILITY GROUP 5

In this group are moderately deep to shallow, well-drained stony soils on uplands and toe slopes. The available moisture capacity generally is low. The slopes range from 15 to 85 percent. The soils are—

AyF Allen stony fine sandy loam, 25 to 60 percent slopes.
BzE Bodine very stony silt loam, 15 to 25 percent slopes.
BzF Bodine very stony silt loam, 25 to 60 percent slopes.
GDF Gilpin-Dekalb stony complex, 25 to 60 percent slopes.
LaE Lehew-Ramsey gravelly fine sandy loams, 15 to 25 percent slopes.
LaF Lehew-Ramsey gravelly fine sandy loams, 25 to 60 percent slopes.
LhE3 Lehew-Ramsey gravelly fine sandy clay loams, 15 to 25 percent slopes, severely eroded.
MfF Montevallo slaty silt loam, 25 to 60 percent slopes.
MfG Montevallo slaty silt loam, 60 to 85 percent slopes.

The average site index on these soils is 90 for white pine, 77 for Virginia pine, 76 for loblolly pine, and 66 for shortleaf pine.

Stoniness may limit the planting of seedlings. The removal of unwanted trees allows seedlings to become established more quickly and to grow more rapidly. The use of equipment is limited on the steep slopes. Harvesting on slopes of more than 60 percent is not advisable. The erosion hazard is severe on all unprotected slopes. The windthrow hazard is severe on slopes of more than 60 percent.

WOODLAND SUITABILITY GROUP 6

This group consists of deep, well-drained soils on toe slopes, in depressions, and on flood plains. The available moisture capacity is high. The slopes are less than 4 percent. The soils are—

Ens Ennis silt loam, local alluvium.
HXA Huntington silt loam, acid variant, local alluvium.
Pop Pope fine sandy loam.
Pos Pope shaly silt loam, local alluvium.

These soils are highly productive, especially of yellow-poplar. The average site index is 120 for yellow-poplar, 80 for white oak, 80 for white ash, 80 for green ash, 100 for white pine, and 90 for loblolly pine.

Because of the high available moisture capacity of these soils, seedling mortality is slight. Competition from undesirable vegetation is severe, however, and intensive control of unwanted trees, shrubs, and vines is necessary for the establishment of desirable trees. There are no special problems in the use of equipment. The hazard of erosion or windthrow is slight.

WOODLAND SUITABILITY GROUP 7

This group consists of moderately deep, moderately well drained to somewhat poorly drained soils on stream terraces, flood plains, and toe slopes. The available moisture capacity ranges from low in soils that have a fragipan to high in soils on flood plains. Some areas are subject to overflow. The soils are—

CBA	Captina silt loam, 0 to 2 percent slopes.
LIA	Landisburg cherty silt loam, 0 to 2 percent slopes.
LIB	Landisburg cherty silt loam, 2 to 6 percent slopes.
LIC	Landisburg cherty silt loam, 6 to 10 percent slopes.
LJA	Leadvale silt loam, 0 to 2 percent slopes.
LJB	Leadvale silt loam, 2 to 6 percent slopes.
Led	Local alluvial land, moderately wet.
Spg	Sandy and gravelly land.
Spl	Stendal-Philo silt loams.
Stl	Stendal silt loam.
TwA	Taft silt loam, 0 to 2 percent slopes.
TyA	Tyler fine sandy loam, 0 to 2 percent slopes.
TyB	Tyler fine sandy loam, 2 to 6 percent slopes.
WdA	Whitwell silt loam, 0 to 2 percent slopes.
WdB	Whitwell silt loam, 2 to 6 percent slopes.
WqA	Whitwell silt loam, moderately wet, 0 to 2 percent slopes.
WqB	Whitwell silt loam, moderately wet, 2 to 6 percent slopes.
WfA	Wolftever silt loam, concretionary variant, 0 to 2 percent slopes.
WfB	Wolftever silt loam, concretionary variant, 2 to 6 percent slopes.

The average site index is 85 for Virginia pine, 76 for loblolly pine, and 64 for shortleaf pine.

Competition from unwanted trees, shrubs, and vines is severe if openings are made in the canopy. The removal of undesirable growth allows seedlings to become established more quickly and to grow more rapidly. Because of the wet nature of these soils and the hazard of overflow in some areas, the limitation on the use of conventional equipment is moderate. Seedling mortality, erosion hazard, and windthrow hazard present no special problems.

WOODLAND SUITABILITY GROUP 8

This group consists of deep, poorly drained soils on flood plains and low stream terraces. The available moisture capacity is low to moderate. Some areas are subject to overflow. The slopes range from 0 to 2 percent. The soils are—

Atk	Atkins silt loam.
Gut	Guthrie silt loam, clay subsoil variant.
Mel	Melvin silt loam.
Pur	Purdy silt loam.
Rob	Robertsville silt loam, clay subsoil variant.

The average site index is 90 for sweetgum, 90 for sycamore, and 80 for green ash. Pine generally does not grow on these soils.

If openings are made in the canopy, competition from unwanted trees, shrubs, and vines is severe. Controlling this vegetation helps desirable seedlings to become established more quickly and to grow more rapidly. Excess surface water and soil moisture limit logging and tree planting in winter months. Seedling mortality is moderate. The erosion hazard and windthrow hazard are slight.

WOODLAND SUITABILITY GROUP 9

This group consists of deep to shallow, somewhat poorly drained and moderately well drained soils on uplands and low stream terraces. The available moisture capacity is low. The slopes range from 0 to 15 percent. The soils are—

CRA	Conasauga silt loam, 0 to 2 percent slopes.
CRB	Conasauga silt loam, 2 to 6 percent slopes.
CRB2	Conasauga silt loam, 2 to 6 percent slopes, eroded.
CSB	Conasauga shaly complex, 2 to 6 percent slopes.
CSB2	Conasauga shaly complex, 2 to 6 percent slopes, eroded.
CSC2	Conasauga shaly complex, 6 to 10 percent slopes, eroded.
CSC3	Conasauga shaly complex, 6 to 10 percent slopes, severely eroded.
CSD	Conasauga shaly complex, 10 to 15 percent slopes.
TxA	Tupelo silt loam, 0 to 2 percent slopes.
TxB2	Tupelo silt loam, 2 to 6 percent slopes, eroded.

The average site index is 77 for loblolly pine and 76 for shortleaf pine.

Erosion is a moderate hazard, particularly on unprotected slopes of more than 10 percent. Desirable seedlings have moderate competition from unwanted trees and shrubs if openings are made in the canopy. The equipment limitation, seedling mortality, and windthrow hazard are moderate.

WOODLAND SUITABILITY GROUP 10

This group consists of well-drained soils that have a shallow root zone and low available moisture capacity. These soils are on uplands. They are—

CME	Colbert very rocky silt loam, 15 to 25 percent slopes.
KjD	Klinesville shaly silt loam, 10 to 15 percent slopes.
KjE	Klinesville shaly silt loam, 15 to 25 percent slopes.
KjF	Klinesville shaly silt loam, 25 to 60 percent slopes.
McC3	Montevallo-Klinesville shaly silt loams, 6 to 10 percent slopes, severely eroded.
McD	Montevallo-Klinesville shaly silt loams, 10 to 15 percent slopes.
McD3	Montevallo-Klinesville shaly silt loams, 10 to 15 percent slopes, severely eroded.
McE	Montevallo-Klinesville shaly silt loams, 15 to 25 percent slopes.
McE3	Montevallo-Klinesville shaly silt loams, 15 to 25 percent slopes, severely eroded.
McF	Montevallo-Klinesville shaly silt loams, 25 to 60 percent slopes.
MdB	Montevallo shaly silt loam, 2 to 6 percent slopes.
MdC	Montevallo shaly silt loam, 6 to 10 percent slopes.
SdF	Steekee stony fine sandy loam, 25 to 60 percent slopes.

The average site index is 70 for Virginia pine, 68 for loblolly pine, and 56 for shortleaf pine.

Erosion is a severe hazard in unprotected areas. The windthrow hazard and equipment limitation are moderate on gentle slopes and severe on slopes of more than 15 percent. Seedling mortality is moderate on slopes of less than 15 percent and severe on slopes of more than 15 percent. Plant competition is moderate. Littleleaf disease is prevalent on shortleaf pine.

Protective practices

Grazing, fire, insects, and disease damage or destroy trees and reduce the amount of wood products harvested.

Heavy grazing not only destroys seedlings and damages trees but also makes the soil more likely to erode and less likely to take in and store water for trees. Uncontrolled grazing is particularly harmful on steep or eroded woodland. If such areas must be used for grazing, the livestock should be distributed so that not more than 40 percent of the low-growing cover is eaten. Grazing is less harmful to woodland in April, May, and June than it is at other times because more forage is available in

those months. Cattle generally damage trees less than other grazing animals do.

Fire not only kills seedlings, young trees, and some of the larger trees but also destroys humus and litter and thereby increases the hazard of erosion. Firebreaks help protect wooded areas by checking or stopping fires. A firebreak may be a road in the woods or a plowed or disked fire lane. At a firebreak, the fire fighters can start a backfire, which is a fire set to counter an advancing fire. Firebreaks should tie into streams, ponds, public roads, utility rights-of-way, or other barriers.

Serious losses from disease and insects are not likely on woodland in Gordon County. To avoid possible damage from insects, however, cuttings should be made in fall or winter. The woodland should be logged with care, so that the trees left standing are not scarred and made more susceptible to disease.

Wildlife and Fish [5]

Most of the soils of Gordon County are suited to, and support, one or more kinds of wildlife. Some species spend most or all of their time in woods; others prosper in open farmlands; and some require a water habitat. Some eat only insects and other animal foods; some, only vegetative foods; and others, a combination of the two (fig. 11).

Bobwhites, mourning doves, rabbits, squirrels, and many nongame birds are common throughout the county. Most farms have suitable sites for fishponds. Deer and wild turkeys require extensive, well-watered woodlands, such as that on Baugh Mountain in the western part of the county and the large wooded areas on and adjacent to flood plains. The long, narrow bottom lands, which are well distributed along streams throughout the county, are well suited to wild ducks.

A summary of the food and habitat needs of the more important kinds of wildlife in the county follows.

Bobwhite.—Choice foods include acorns, beechnuts, blackberries, browntop millet, wild black cherries, corn, cowpeas, dewberries, flowering dogwood, annual lespedeza, bicolor lespedeza, mulberries, pecans, pine, common ragweed, sweetgum, and tickclover. Bobwhite also eat many insects. The food must be close to vegetation that provides shade, protection from predators, and shelter during adverse weather.

Deer.—Choice foods include acorns, bahiagrass, clover, corn, cowpeas, greenbrier, honeysuckle, annual lespedeza, bicolor lespedeza, oats, rescuegrass, ryegrass, and wheat. Woodlands of 500 acres or more normally provide adequate cover.

Dove, Mourning.—Choice foods include browntop millet, corn, Japanese millet, pine, common ragweed, and sweetgum seed. Doves do not eat insects, greenleaves, or fruit. They drink water daily.

Duck.—Choice foods are acorns, beechnuts, browntop millet, corn, Japanese millet, and smartweed seed. These foods should be covered with water to be readily available to ducks. However, ducks will eat acorns and corn on dry land.

[5] Verne E. Davison, field biologist, and Taylor A. Oncale, biologist, Soil Conservation Service, assisted in the preparation of this subsection.

Figure 11.—**Grain sorghum on Montevallo shaly silt loam, 2 to 6 percent slopes. Grain sorghum is choice food for most grain feeders but is undesirable because it rots quickly in this climate and attracts undesirable birds.**

Rabbit.—Cover, such as a blackberry or plum thicket, is a prime requirement in rabbit habitats. Choice foods are clover, winter grasses, and other succulent vegetation.

Squirrel.—Choice foods are acorns, beechnuts, black gum, black cherries, corn, flowering dogwood, hickory nuts, mulberries, pecans, and pine seeds.

Turkey, Wild.—Turkeys survive only in large wooded areas—generally 2,000 acres or larger in size. They need water for daily drinking, and they often roost in large trees over or near water. Choice foods are insects, acorns, bahiagrass seed, beechnuts, blackberries, dewberries, browntop millet, clover leaves, corn, cowpeas, flowering dogwood, wild grapes, hackberries, mulberries, oats, pecans, pine seeds, fescuegrass, ryegrass forage, and wheat.

Nongame Birds.—The nongame birds differ greatly in their choice of food. Several species eat only insects. A few eat insects and fruit. Several others eat insects, fruit, and acorns. The food ratings in table 9 are general ones, and numerous exceptions to them exist.

FISH.—The principal game fish in Gordon County are bass, bluegill, and channel catfish. Choice foods for bluegill are aquatic worms, insects, and insect larvae. Bass and channel catfish feed on small fish. The supply of food for fish depends on the fertility of the water, on the nature of the soils of the watershed, and somewhat on the nature of the soils in the bottom of the pond. Because of low fertility and the acidity of the soils, most ponds in this county need fertilizer and lime to produce enough food for fish.

The county unit of the Soil Conservation Service maintains specific up-to-date, technical guides for each important kind of wildlife and fish, and for each significant plant that provides food or cover for wildlife. It also has specifications for the establishment and maintenance of each soil and water conservation practice that is adaptable to the soils and waters in the county. Thus, any landowner can obtain practical help in planning and establishing food supply and habitat for the kinds of wildlife or fish he wishes to favor.

Wildlife suitability groups

The soils in Gordon County have been placed in 11 wildlife suitability groups. All of the soils in one group are estimated to have similar capacity to produce food and cover for wildlife. These groups are discussed in the following pages.

Table 9 lists the important food plants in the county and rates them as *choice*, *fair*, or *unimportant* as foods for the given kinds of wildlife. Table 10 lists the same plants and rates them *suited*, *marginally suited*, or *poorly suited* to the soils in the 11 suitability groups.

The plants listed in tables 9 and 10 also furnish cover for some species. A shortage of cover is not likely to be a problem in the county, because the climate is such that vegetation is generally abundant, or even excessive, or can be grown readily where needed.

WILDLIFE SUITABILITY GROUP 1

The soils in this group have a deep root zone and are well drained. They occur on level to strongly sloping uplands and on stream terraces throughout the county, but the largest acreage is in the western half. The surface layer is 5 to 16 inches thick and is moderately coarse textured or medium textured. The subsoil is friable to extremely firm and is moderately fine textured or fine textured. These soils have good to fair tilth and are easily cultivated. Their available moisture capacity is adequate for all locally grown crops. Erosion is a slight to moderate hazard. The soils are—

Allen fine sandy loam, 2 to 6 percent slopes, eroded.
Allen fine sandy loam, 6 to 10 percent slopes, eroded.
Christian fine sandy loam, 2 to 6 percent slopes.
Christian fine sandy loam, 6 to 10 percent slopes.
Clarksville cherty silt loam, 2 to 6 percent slopes.
Clarksville cherty silt loam, 6 to 10 percent slopes, eroded.
Cumberland loam, 2 to 6 percent slopes.
Cumberland loam, 6 to 10 percent slopes, eroded.
Dewey silt loam, 2 to 6 percent slopes, eroded.
Dewey silt loam, 6 to 10 percent slopes, eroded.
Etowah loam, 0 to 2 percent slopes.
Etowah loam, 2 to 6 percent slopes.
Etowah loam, 6 to 10 percent slopes.
Farragut silt loam, 2 to 6 percent slopes, eroded.
Fullerton cherty silt loam, 2 to 6 percent slopes.
Fullerton cherty silt loam, 6 to 10 percent slopes.
Hartsells fine sandy loam, 2 to 6 percent slopes.
Hartsells fine sandy loam, 6 to 10 percent slopes.
Jefferson gravelly fine sandy loam, 6 to 10 percent slopes.
Muse silt loam, 2 to 6 percent slopes.
Muse silt loam, 2 to 6 percent slopes, eroded.
Muse silt loam, 6 to 10 percent slopes, eroded.
Nolichucky fine sandy loam, 2 to 6 percent slopes.
Nolichucky fine sandy loam, 6 to 10 percent slopes.
Sequatchie loam, 0 to 2 percent slopes.
Sequatchie loam, 2 to 6 percent slopes.
Sequatchie loam, 2 to 6 percent slopes, eroded.
Sequoia silt loam, 2 to 6 percent slopes, eroded.
Sequoia silt loam, 6 to 10 percent slopes, eroded.
Waynesboro fine sandy loam, 2 to 6 percent slopes, eroded.
Waynesboro fine sandy loam, 6 to 10 percent slopes, eroded.

These soils are used mostly for cultivated crops. They are highly productive of many of the plants that provide food for wildlife. They are not suited to flooding for duck fields, but some drainageways are suitable sites for ponds (see table 13).

WILDLIFE SUITABILITY GROUP 2

This group consists of deep or moderately deep, well-drained, very strongly sloping to steep soils on uplands and stream terraces. Most of the acreage is in the western half of the county, but small areas are scattered throughout the eastern half. The surface layer is 5 to 16 inches thick and is moderately coarse textured or medium textured. The subsoil is friable to extremely firm and is moderately fine textured or fine textured. These soils have good to fair tilth and are easily cultivated. They range from low to high in available moisture capacity. The erosion hazard is moderate to high, varying with the steepness of the slope. The soils are—

Allen fine sandy loam, 10 to 15 percent slopes.
Allen fine sandy loam, 10 to 15 percent slopes, eroded.
Allen fine sandy loam, 15 to 25 percent slopes.
Christian fine sandy loam, 10 to 15 percent slopes.
Christian fine sandy loam, 15 to 25 percent slopes.
Clarksville cherty silt loam, 10 to 15 percent slopes.
Clarksville cherty silt loam, 15 to 25 percent slopes.
Clarksville cherty silt loam, 15 to 25 percent slopes, eroded.
Fullerton cherty silt loam, 10 to 15 percent slopes.
Fullerton cherty silt loam, 15 to 25 percent slopes.
Fullerton cherty silt loam, 25 to 60 percent slopes.
Jefferson gravelly fine sandy loam, 10 to 15 percent slopes.
Jefferson gravelly fine sandy loam, 15 to 25 percent slopes.
Nolichucky fine sandy loam, 10 to 15 percent slopes, eroded.
Waynesboro fine sandy loam, 10 to 15 percent slopes, eroded.
Waynesboro fine sandy loam, 15 to 25 percent slopes, eroded.

Most of the acreage has a cover of trees or pasture grasses. These soils are not suited to annual plants because of the slopes. They are marginal for perennial grasses, lespedeza, and some woody plants, but they are suited to blackgum, wild black cherry, flowering dogwood, hickory, and pine. Some drainageways are favorable sites for ponds (see table 13).

WILDLIFE SUITABILITY GROUP 3

In this group are severely eroded soils that are well drained and have a deep or moderately deep root zone. These soils are on gently sloping to strongly sloping uplands and stream terraces. Most of the acreage is in the western part of the county, but some small areas are scattered throughout the eastern half. The surface layer and subsoil are moderately fine textured or fine textured.

TABLE 9.--SUITABILITY OF PLANTS AS FOOD FOR WILDLIFE

[The figure 1 indicates that the plant is choice (attractive and nutritious for a given kind of wildlife); the figure 2, fair (eaten when choice foods are unavailable); the figure 3, unimportant (eaten only in small amounts)]

Plant	Part of plant eaten	Bobwhite	Deer	Dove	Duck	Rabbit	Squirrel	Turkey	Nongame birds 1/		
									Fruit eaters	Grain and seed eaters	Nut and acorn eaters
Bahiagrass	Foliage	3	1	3	3	3	3	3	3	3	3
	Seed	3	3	2	3	3	3	1	3	2	3
Beech	Nut	1	2	3	1	3	1	1	3	3	1
Blackberry	Fruit	1	3	3	3	3	2	1	1	3	3
	Foliage	3	2	3	3	3	3	3	3	3	3
Blackgum	Fruit	2	3	3	3	3	1	2	1	3	2
Browntop millet	Seed	1	3	1	1	3	3	1	3	1	3
Buttonclover	Foliage	3	1	3	3	1	3	1	3	3	3
Cherry, black	Fruit	1	3	3	3	3	1	2	1	3	2
Clover, crimson	Foliage	2	1	3	3	1	3	1	3	3	3
Clover, white	Foliage	2	1	3	3	1	3	1	3	3	3
Corn	Seed	1	1	1	1	1	1	1	3	1	2
Cowpeas	Seed	1	1	2	3	2	3	1	3	3	3
Dewberry	Fruit	1	3	3	3	2	2	1	1	3	3
Dogwood, flowering	Fruit	1	3	3	3	3	1	1	1	3	3
Fescue, tall	Foliage	3	2	3	3	2	3	2	3	3	3
Grapes, wild	Fruit	3	3	3	3	3	2	1	1	3	3
Greenbrier	Foliage	3	1	3	3	1	3	3	3	3	3
Hackberry	Fruit	2	3	3	3	3	2	1	1	3	3
Hickory	Nut	3	3	3	3	3	1	2	3	3	1
Honeysuckle	Foliage	3	1	3	3	2	3	3	3	3	3
Japanese millet	Seed	2	3	1	1	3	3	2	3	1	3
Lespedeza, annual	Foliage	3	1	3	3	2	3	3	3	3	3
	Seed	1	3	3	3	3	3	2	3	3	3
Lespedeza, bicolor	Foliage	3	1	3	3	2	3	3	3	3	3
	Seed	1	3	3	3	3	3	3	3	3	3
Lespedeza, sericea	Seed	3	3	3	3	3	3	3	3	3	3
Mulberry	Fruit	1	2	3	3	3	1	1	1	3	3
Oak	Acorn	1	1	3	1	3	1	1	3	3	1
Oats	Foliage	3	1	3	3	1	3	1	3	3	3
Pecan	Nut	1	2	3	3	3	1	1	3	3	1
Pine	Seed	1	3	1	3	3	1	1	3	1	1
Ragweed, common	Seed	1	3	1	3	3	3	3	3	1	3
Rescuegrass	Foliage	3	1	3	3	1	3	1	3	3	3
Ryegrass	Foliage	3	1	3	3	1	3	1	3	3	3
Smartweed	Seed	2	3	3	1	3	3	3	3	3	3
Sorghum, grain 2/	Seed	1	1	1	1	1	1	1	3	1	3
Sweetgum	Seed	1	3	1	3	3	2	2	3	1	3
Tickclover (beggarlice)	Seed	1	3	3	3	3	3	2	3	3	3
Wheat	Foliage	3	1	3	3	1	3	1	3	3	3

1/ Fruit eaters include bluebirds, catbirds, mockingbirds, and waxwings. Grain and seed eaters include blackbirds, cardinals, meadowlarks, sparrows, and towhees. Nut and acorn eaters include chickadees, grackles, bluejays, titmice, and woodpeckers.

2/ Grain sorghum is a choice food of most wildlife that feed on grain. It is limited in value and suitability because the humid climate causes it to rot and because it attracts blackbirds, cowbirds, sparrows, and other undesirable birds.

Tilth is fair to poor. The available moisture capacity is adequate for most crops. The clayey surface layer becomes crusty when dry, and consequently a good stand of plants that have small seed is difficult to obtain. The soils are—

Allen fine sandy clay loam, 6 to 10 percent slopes, severely eroded.
Christian fine sandy clay loam, 2 to 6 percent slopes, severely eroded.
Christian fine sandy clay loam, 6 to 10 percent slopes, severely eroded.
Cumberland silty clay loam, 2 to 6 percent slopes, severely eroded.
Cumberland silty clay loam, 6 to 10 percent slopes, severely eroded.
Dewey silty clay loam, 6 to 10 percent slopes, severely eroded.
Farragut silty clay loam, 2 to 6 percent slopes, severely eroded.
Farragut silty clay loam, 6 to 10 percent slopes, severely eroded.
Fullerton cherty silty clay loam, 6 to 10 percent slopes, severely eroded.
Sequoia silty clay loam, 2 to 6 percent slopes, severely eroded.
Sequoia silty clay loam, 6 to 10 percent slopes, severely eroded.
Waynesboro fine sandy clay loam, 6 to 10 percent slopes, severely eroded.

Most of these soils have been cultivated in the past, but many of the steeper slopes have reverted to pine. Wildlife food plants are difficult to establish and to maintain because of poor tilth and severe erosion. These soils are marginal for cultivated crops, clover, grasses, small grain, and most shrubs. Some of the drainageways are favorable sites for ponds (see table 13).

WILDLIFE SUITABILITY GROUP 4

In this group are severely eroded, well-drained soils on very strongly sloping or moderately steep uplands and stream terraces. These soils are moderately low or low in natural fertility. The surface layer is moderately fine textured and is difficult to cultivate when dry or wet. The subsoil is moderately fine textured or fine textured. The hazard of erosion is very severe because of the slopes and previous erosion. The soils are—

Allen fine sandy clay loam, 15 to 25 percent slopes, severely eroded.
Christian fine sandy clay loam, 10 to 15 percent slopes, severely eroded.
Christian fine sandy clay loam, 15 to 25 percent slopes, severely eroded.
Clarksville cherty silty clay loam, 10 to 15 percent slopes, severely eroded.
Dewey silty clay loam, 10 to 15 percent slopes, severely eroded.
Dewey silty clay loam, 15 to 25 percent slopes, severely eroded.
Farragut silty clay loam, 10 to 15 percent slopes, severely eroded.
Fullerton cherty silty clay loam, 10 to 15 percent slopes, severely eroded.
Fullerton cherty silty clay loam, 15 to 25 percent slopes, severely eroded.
Gullied land.
Sequoia silty clay loam, 10 to 15 percent slopes, severely eroded.
Waynesboro fine sandy clay loam, 10 to 15 percent slopes, severely eroded.
Waynesboro fine sandy clay loam, 15 to 25 percent slopes, severely eroded.

TABLE 10.--SUITABILITY OF PLANTS TO SOILS, BY WILDLIFE SUITABILITY GROUPS

[The figure 1 indicates that the plant is suited to the soils in the given soil groups; the figure 2, marginally suited; the figure 3, poorly suited or not suited]1/

Plants	Wildlife suitability group--										
	1	2	3	4	5	6	7	8	9	10	11
Bahiagrass	1	3	2	3	2	3	2	3	1	2	3
Beech	2	2	3	3	1	3	3	2	1	2	3
Blackberry	1	1	2	3	1	2	2	2	1	1	3
Blackgum	1	1	3	3	2	3	3	3	1	1	3
Browntop millet	1	3	2	3	1	3	2	3	1	1	3
Buttonclover	1	3	2	3	3	3	3	3	1	2	3
Cherry, black (wild)	1	1	3	3	2	3	2	2	1	2	3
Clover, crimson	1	3	2	3	2	3	2	3	1	2	3
Clover, white	1	3	3	3	2	3	3	3	1	1	2
Corn	1	3	2	3	2	3	2	3	1	2	3
Cowpeas	1	3	2	3	2	3	2	3	1	2	3
Dewberry	1	2	2	2	1	2	2	3	2	2	3
Dogwood, flowering	1	1	2	3	1	2	1	2	1	2	3
Fescue, tall	1	2	2	3	2	2	3	3	1	1	2
Grapes, wild	1	1	2	2	2	3	2	2	1	2	3
Greenbrier	1	2	2	2	1	2	2	2	1	2	3
Hackberry	1	2	2	3	2	3	3	3	1	2	3
Hickory	1	1	3	3	2	3	2	2	1	2	3
Honeysuckle	1	3	2	3	1	3	3	3	1	2	3
Japanese millet	1	3	3	3	3	3	3	3	1	1	1
Lespedeza, annual	1	2	1	2	1	2	2	3	1	2	3
Lespedeza, bicolor	1	2	1	2	1	2	2	3	1	3	3
Lespedeza, sericea	1	2	1	2	1	2	2	3	1	3	3
Mulberry	1	2	3	3	2	3	3	3	1	2	3
Oak 1/	1	2	3	3	2	2	2	2	1	2	1 2/
Oats	1	3	2	3	1	3	2	3	1	3	3
Pecan	1	2	3	3	3	3	2	3	1	2	3
Pines (loblolly and shortleaf)	1	1	2	2	1	2	2	2	1	2	3
Ragweed, common	1	3	2	3	1	3	3	3	1	3	3
Rescuegrass	1	3	2	3	1	3	3	3	1	2	3
Ryegrass	1	3	2	3	1	3	2	3	1	2	3
Smartweed	3	3	3	3	3	3	3	3	2	1	1
Sorghum, grain 3/	3	3	3	3	3	3	3	3	3	3	3
Sweetgum	1	1	2	3	2	2	2	3	1	1	2
Tickclover (beggarlice)	1	2	1	2	1	2	2	3	1	3	3
Wheat	1	3	2	3	2	3	2	3	1	3	3

1/ Suitable oak trees include black oak, blackjack oak, northern red oak, pin oak, post oak, sawtooth oak, scarlet oak, shumard oak, southern red oak, water oak, white oak, and willow oak.

2/ Overcup oak only.

3/ Because grain sorghum attracts flocks of blackbirds, sparrows, and other undesirable birds, and because it rots quickly in this humid climate, it is rated poorly suited although it grows well on many soils in the county.

These soils are not extensive. Most of the acreage has been cultivated in the past, but much of it has reverted to pine. Vegetation is difficult to establish and to maintain because of severe erosion and the very strong and moderately steep slopes. Generally, these soils are not well suited to plants that provide food for wildlife. They are marginal for perennial lespedeza, pine, and tickclover. Table 13 shows the suitability of these soils for pond sites.

WILDLIFE SUITABILITY GROUP 5

This group consists of moderately well drained or somewhat poorly drained soils in depressions, on low stream terraces, on low flat hills, and near the base of hills, throughout the county. The slopes range from 0 to 10 percent. The surface layer is medium textured and very friable or friable. The subsoil is moderately fine textured or fine textured and is firm or extremely firm and very plastic. Most of the soils have a fragipan at a depth of 15 to 36 inches. The movement of water through these soils is restricted by the fragipan or by the clayey subsoil. Natural fertility is moderate or low. The soils are—

Captina silt loam, 0 to 2 percent slopes.
Conasauga silt loam, 0 to 2 percent slopes.
Conasauga silt loam, 2 to 6 percent slopes.
Conasauga silt loam, 2 to 6 percent slopes, eroded.
Landisburg cherty silt loam, 6 to 10 percent slopes.
Leadvale silt loam, 0 to 2 percent slopes.
Leadvale silt loam, 2 to 6 percent slopes.
Locust gravelly fine sandy loam, 2 to 6 percent slopes.
Monongahela fine sandy loam, 2 to 6 percent slopes.
Monongahela fine sandy loam, 6 to 10 percent slopes.
Monongahela gravelly silt loam, 2 to 6 percent slopes.
Sandy and gravelly land.
Tupelo silt loam, 0 to 2 percent slopes.
Tupelo silt loam, 2 to 6 percent slopes, eroded.
Wolftever silt loam, concretionary variant, 0 to 2 percent slopes.
Wolftever silt loam, concretionary variant, 2 to 6 percent slopes.

The hazard of excess water is moderate to severe on the Conasauga and Tupelo soils that have slopes of 0 to 2 percent. The other soils in this group are susceptible to slight or severe erosion. All of these soils are suited to most plants that provide food for wildlife. Some areas can be flooded for duck fields. Table 13 shows the soils that are favorable for pond sites.

WILDLIFE SUITABILITY GROUP 6

This group consists of well drained and moderately well drained soils on uplands throughout the county. The depth to shale, sandstone, and limestone is 12 to 36 inches. The slopes range from 2 to 15 percent. The surface layer is moderately coarse textured to moderately fine textured and generally is shaly or gravelly. The available moisture capacity is low, and natural fertility is also low. The soils are—

Conasauga shaly complex, 2 to 6 percent slopes.
Conasauga shaly complex, 2 to 6 percent slopes, eroded.
Conasauga shaly complex, 6 to 10 percent slopes, eroded.
Conasauga shaly complex, 6 to 10 percent slopes, severely eroded.
Conasauga shaly complex, 10 to 15 percent slopes.
Lehew-Dekalb gravelly fine sandy loams, 2 to 6 percent slopes.
Lehew-Dekalb gravelly fine sandy loams, 6 to 10 percent slopes.
Lehew-Dekalb gravelly fine sandy loams, 10 to 15 percent slopes.
Lehew-Dekalb gravelly fine sandy clay loams, 10 to 15 percent slopes, severely eroded.
Rarden silt loam, 2 to 6 percent slopes.
Rarden silt loam, 2 to 6 percent slopes, eroded.
Rarden silt loam, 6 to 10 percent slopes, eroded.
Rarden silt loam, 10 to 15 percent slopes, eroded.
Rarden shaly silty clay loam, shallow, 6 to 10 percent slopes, severely eroded.
Rarden shaly silty clay loam, shallow, 10 to 15 percent slopes, severely eroded.

These soils are marginally suited or poorly suited to most plants that provide food for wildlife. Most of the acreage is forested. Table 13 shows the suitability of these soils for pond sites.

WILDLIFE SUITABILITY GROUP 7

The soils in this group are well drained and have a shallow root zone. They occur on gently sloping ridgetops and on strong or very strong side slopes throughout the county. Shale bedrock is at a depth of 8 to 20 inches. The surface layer is friable shaly silt loam and is 3 to 6 inches thick. It is underlain by 5 to 15 inches of friable shaly silt loam. Natural fertility is low, and the available moisture capacity is also low. The hazard of erosion is moderate to very severe if these soils are cultivated. The soils are—

Klinesville shaly silt loam, 10 to 15 percent slopes.
Montevallo shaly silt loam, 2 to 6 percent slopes.
Montevallo shaly silt loam, 6 to 10 percent slopes.
Montevallo-Klinesville shaly silt loams, 10 to 15 percent slopes.
Montevallo-Klinesville shaly silt loams, 6 to 10 percent slopes, severely eroded.
Montevallo-Klinesville shaly silt loams, 10 to 15 percent slopes, severely eroded.

These soils are marginally suited or poorly suited to most plants that provide food for wildlife. Pine and flowering dogwood are the best suited food plants for wildlife. Some small drainageways are favorable sites for ponds (see table 13).

WILDLIFE SUITABILITY GROUP 8

This group consists of cobbly, slaty, shaly, or stony soils. Most of these soils have a shallow root zone and low available moisture capacity. The average depth to bedrock is about 15 inches. The slopes range from 15 to 85 percent. The soils are—

Allen stony fine sandy loam, 25 to 60 percent slopes.
Bodine very stony silt loam, 15 to 25 percent slopes.
Bodine very stony silt loam, 25 to 60 percent slopes.
Colbert very rocky silt loam, 15 to 25 percent slopes.
Gilpin-Dekalb stony complex, 25 to 60 percent slopes.
Klinesville shaly silt loam, 15 to 25 percent slopes.
Klinesville shaly silt loam, 25 to 60 percent slopes.
Lehew-Ramsey gravelly fine sandy loams, 15 to 25 percent slopes.
Lehew-Ramsey gravelly fine sandy loams, 25 to 60 percent slopes.
Lehew-Ramsey gravelly fine sandy clay loams, 15 to 25 percent slopes, severely eroded.
Montevallo-Klinesville shaly silt loams, 15 to 25 percent slopes.
Montevallo-Klinesville shaly silt loams, 25 to 60 percent slopes.
Montevallo-Klinesville shaly silt loams, 15 to 25 percent slopes, severely eroded.
Montevallo slaty silt loam, 25 to 60 percent slopes.
Montevallo slaty silt loam, 60 to 85 percent slopes.
Rarden shaly silty clay loam, shallow, 15 to 25 percent slopes, severely eroded.
Steekee stony fine sandy loam, 25 to 60 percent slopes.

These soils are extensive throughout the county. They are unsuited to cultivation because of the slopes, low available moisture capacity, and stones and cobblestones. Most of the acreage is wooded. Hickory and oak are the best suited food plants for wildlife. Most of these soils provide poor sites for ponds. Permanent streams and springs are scarce in some areas.

WILDLIFE SUITABILITY GROUP 9

This group consists of well drained or moderately well drained alluvial soils around the head of drainageways, in depressions, on flood plains, and on low stream terraces throughout the county. These soils are flooded for short periods, normally less than 2 days, at intervals ranging from a few months to several years. The surface layer is silt loam, fine sandy loam, or shaly silt loam and is 8 to 32 inches thick. The underlying material varies in texture but is mostly silty clay loam. These soils are easily worked and have high available moisture capacity. They are suited to most locally grown crops. The soils are—

Ennis silt loam, local alluvium.
Huntington silt loam, acid variant, local alluvium.
Pope fine sandy loam.
Pope shaly silt loam, local alluvium.
Whitwell silt loam, 0 to 2 percent slopes.
Whitwell silt loam, 2 to 6 percent slopes.

The larger areas of these soils are along the Oostanaula, Conasauga, and Coosawattee Rivers, and along Salacoa and Pine Log Creeks. Most of the acreage is cultivated or pastured. These soils are suited to most of the choice food plants for wildlife. Some areas can be flooded for duck fields. Table 13 shows the soils that are suitable for pond sites.

WILDLIFE SUITABILITY GROUP 10

This group consists of somewhat poorly drained or moderately well drained soils on first bottoms, around the head of drainageways and on low stream terraces. The surface layer is 4 to 5 inches thick and ranges from silt loam to fine sandy loam. The underlying material varies in texture. These soils are easily worked if drainage is adequate. The available moisture capacity ranges from low to high. The soils on first bottoms are flooded almost every year for periods of 1 to 5 days. The soils are—

Landisburg cherty silt loam, 0 to 2 percent slopes.
Landisburg cherty silt loam, 2 to 6 percent slopes.
Local alluvial land, moderately wet.
Stendal silt loam.
Stendal-Philo silt loams.
Taft silt loam, 0 to 2 percent slopes.
Tyler fine sandy loam, 0 to 2 percent slopes.
Tyler fine sandy loam, 2 to 6 percent slopes.
Whitwell silt loam, moderately wet, 0 to 2 percent slopes.
Whitwell silt loam, moderately wet, 2 to 6 percent slopes.

These soils are moderately extensive, and much of the acreage is pastured. Because of the high water table, poor drainage, and flooding, these soils are suited to only a few of the choice food plants for wildlife. They are suited to browntop millet, white clover, tall fescue, Japanese millet, and smartweed. Many areas can be flooded for duck fields. Table 13 shows the soils that are suitable for pond sites.

WILDLIFE SUITABILITY GROUP 11

In this group are poorly drained soils on first bottoms, on very low stream terraces, and in depressions on the uplands. The surface layer is silt loam and is 5 to 12 inches thick. It is underlain by gray material that varies in texture but commonly is silt loam, clay loam, silty clay, or clay. These soils have a shallow root zone because of the high water table, and they are difficult to work. The soils on first bottoms are flooded each year for periods of a few days to several weeks. The soils are—

Atkins silt loam.
Guthrie silt loam, clay subsoil variant.
Melvin silt loam.
Purdy silt loam.
Robertsville silt loam, clay subsoil variant.

Because of the high water table, poor drainage, and flooding, these soils are suited to only a few of the choice plants that provide food for wildlife. They are suited to Japanese millet and smartweed for ducks and the woody plants eaten by deer. Most areas can be flooded for duck fields. Table 13 shows the soils that are suitable for pond sites.

Engineering Characteristics of the Soils [6]

Some soil properties are of special interest to the engineer because they affect the construction and maintenance of roads, airports, pipelines, building foundations, structures for water storage, structures for controlling erosion, drainage systems, and sewage disposal systems. The soil properties most important to the engineer are permeability to water, shear strength, compaction characteristics, drainage, shrink-swell characteristics, grain size, plasticity, and pH. Depth to water table, depth to bedrock, and topography are also important.

Information in this section is useful in—

1. Making soil and land use studies that will aid in the selection and development of industrial, business, residential, and recreational sites.
2. Determining the suitability of the soils for agricultural drainage systems, farm ponds, irrigation systems, and diversion terraces.
3. Evaluating the soils at proposed sites of highways, airports, pipelines, and cables, and planning detailed investigations at selected sites.
4. Locating probable sources of gravel and other construction material.
5. Correlating the properties of the soils with the condition of existing engineering structures on the soils, and thus developing information that will aid in maintaining existing structures and in planning future construction.
6. Making maps and reports that can be used readily by engineers.
7. Determining whether or not vehicles and construction equipment can be moved over the soils.
8. Developing other preliminary estimates for construction purposes pertinent to the particular area.

[6] E. R. DANIEL, agricultural engineer, Soil Conservation Service, assisted in the preparation of this subsection.

With the use of the soil map for identification, the engineering interpretations reported here can be useful for many purposes. It should be emphasized that they may not eliminate the need for sampling and testing at the site of specific engineering works involving heavy loads and where the excavations are deeper than the depths of layers here reported. Even in these situations, the soil map is useful for planning more detailed field investigations and for suggesting the kinds of problems that may be expected.

Some terms used by soil scientists say be unfamiliar to engineers; other terms, for example, *soil*, *sand*, *silt*, *clay*, *subsoil*, and *topsoil*, may have special meanings in soil science. These terms are defined in the Glossary at the back of this report.

Engineering classification of soils

The engineering classification systems now most widely used are the American Association of State Highway Officials (AASHO) system (*2*) and the Unified system (*11*). Both systems classify soil material according to gradation and plasticity characteristics.

The AASHO system is used by most highway engineers. It places soil material in seven principal groups. The groups range from A–1, which consists of gravelly soils of high bearing capacity, to A–7, which consists of clayey soils that have low strength when wet. In this report, group index numbers are assigned only for the soils on which tests have been performed.

Some engineers prefer to use the Unified system. This system classifies soil material as coarse grained (eight classes) and fine grained (six classes).

Table 11 shows both the Unified and the AASHO classification of the soils tested. Table 12 shows the estimated classification of all the soils in the county according to both systems.

Engineering test data

To help evaluate the soils for engineering purposes, samples from 12 profiles of the principal soil types of 5 soil series were tested. Table 11 gives the results. Footnotes to this table give the methods of testing that were used. All samples tested were taken from a depth of less than 7 feet. The test data, therefore, may not be adequate for estimating the characteristics of soil materials in rolling or hilly areas where deep cuts are needed.

The ortho, or modal, profile of a series is the most nearly typical for the soil series as it occurs within the county. The test data show some variations in physical characteristics, but they probably do not show the maximum variations that exist.

In the moisture-density (compaction) test, soil material is compacted into a mold several times, each time at a successively higher moisture content, while the compactive effort remains constant. The dry density (unit weight) of the soil increases as the moisture content increases, until the optimum moisture content is reached. Beyond this, the dry density decreases as the moisture content increases. The highest dry density obtained in the test is termed the *maximum dry density*, and the corresponding moisture content is termed the *optimum moisture*. Moisture-density data are important in earthwork because, as a rule, optimum stability is obtained if the soil is compacted to about the maximum dry density at approximately optimum moisture.

The results of the mechanical analysis may be used to determine the relative proportions of the different size particles. The clay content was obtained by the hydrometer method, so these results should not be used in naming soil textural classes.

The liquid limit and plasticity index indicate the effect of water on the consistency of the soil material. As the moisture content of a clayey soil increases, the material changes from a semisolid to a plastic state. As the moisture content is further increased, the material changes from a plastic to a liquid state. The *plastic limit* is the moisture content at which the material passes from a semisolid to a plastic state. The *liquid limit* is the moisture content at which the material passes from a plastic to a liquid state. The *plasticity index* is the numerical difference between the liquid limit and the plastic limit. It indicates the range of moisture content within which the soil material is plastic.

Engineering descriptions and physical properties

The information in table 12 is based on the soil test data in table 11, on information given in the rest of the report, on information gained from other soil survey reports, and on experience with the same soils in this and other counties. The texture of the soil material may vary considerably from place to place. Therefore, the engineering soil classification of the upper layer given in table 12 may not apply to all soils in a soil series. Table 12 gives, for each of the mapping units, some of the soil characteristics significant in engineering and the engineering classification of the soil material in the principal horizons.

The column headed "Description of soil and site" gives a general description of a profile, the depth to the seasonal high water table, and the depth to bedrock. The depth to the seasonal high water table is the approximate distance, in feet, from the surface to the free water in the soil during the wettest part of the year. The depth to bedrock refers to the approximate distance, in feet, from the surface to solid rock. The depth to the seasonal high water table and to bedrock are based on field observations.

Permeability was estimated as it occurred when the soil material was in place. The estimates, based on soil structure and porosity, were compared with the results of permeability tests on undisturbed cores of similar soil material.

The available water capacity, measured in inches per inch of soil, is the approximate amount of water available to plants. It is the numerical difference between the percentage of water at field capacity (approximated at 1/3 atmosphere of tension for silty and clayey soils and at 1/10 atmosphere of tension for sandy soils) and the percentage of water at the time plants wilt (approximated at 15 atmospheres of tension). These estimates are based on experimental data of similar soils.

Reaction, which indicates the degree of acidity and alkalinity of the soils, is expressed as pH value. The pH values shown in table 12 were determined by field tests.

The shrink-swell potential indicates the volume change to be expected when the soil material changes in moisture content. This potential is based on volume-change tests. The ratings in table 12 were estimated primarily on the basis of the amount and type of clay in the soil material. In general, soils classified as CH and A–7 have high shrink-swell potential. Clean sands and gravels (single-grain structure) and sand and gravel containing small amounts of nonplastic to slightly plastic fines, as well as most nonplastic to slightly plastic soil material, have low shrink-swell potential.

Features affecting engineering work

Table 13 shows features of the soils that affect the selection, design, or application of land-treatment measures, and it notes the suitability of the soils for specific purposes. The information in this table is based on the estimated data in table 12, on actual test data available (*4*), and on field experience.

The ratings as a source of topsoil are based on suitability for dressing slopes and road shoulders and for lining ditches to promote growth of vegetation. Severely eroded areas are not suitable sources of topsoil material. None of the soils in the county are suitable as a source of coarse or fine aggregate for concrete.

The ratings as a source of material for road fill are based primarily on suitability for use in construction of stable fill. Some consideration was given to the presence of rocks and boulders, to the depth to bedrock, and to the presence of excess moisture.

Road-base material consists primarily of well-graded gravelly soils and soil material free of organic matter. The soils are rated *good*, *fair*, or *poor*. Good indicates a well-drained gravelly soil; fair, a clayey soil that contains some gravel and is not too well drained; and poor, a soil not suitable for road base.

The features considered as being unfavorable to highway location are high water table, flooding, seepage, highly plastic soil material, shallowness to bedrock, boulders, unstable slopes, and erodibility (fig. 12).

Some soils have features that make them unfavorable for use as reservoir sites and as sources of embankment material for construction of farm ponds. These unfavorable features should be carefully evaluated in selecting reservoir and embankment sites. Greater than normal water loss can be expected from reservoir sites located on soils that have rapid permeability and excessive seepage. Soils that have slow permeability are generally favorable. Stable enbankments generally can be constructed with earth material that has moderate strength and stability. Care should be exercised if material of low strength and stability is used in embankments.

Agricultural drainage is needed on some soils on first bottoms and low stream terraces. Soils that have moderate permeability can be drained satisfactorily if adequate outlets for drainage systems are available. Subsurface drainage is difficult on soils that have slow permeability.

Generally, only those soils that are capable of sustained high yields are considered suitable for irrigation. Best results are obtained on well-drained soils that have moderate to moderately rapid infiltration and high available moisture capacity. A portable sprinkler irrigation system is the most suitable method of irrigation in this county.

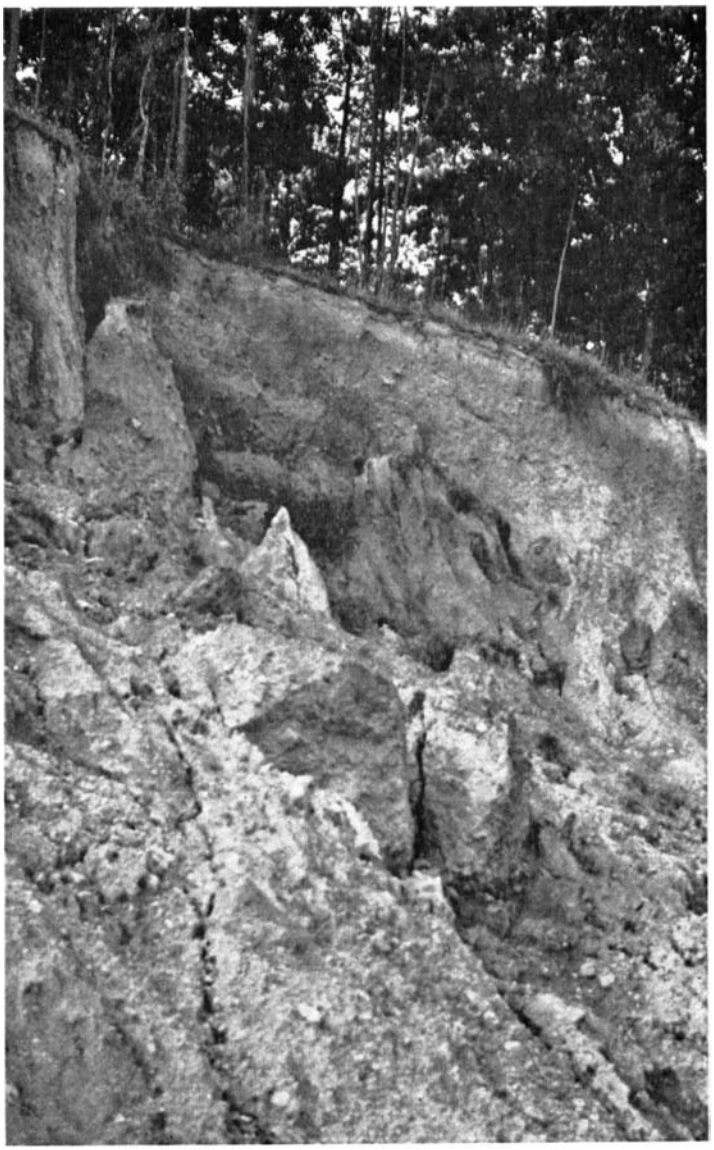

Figure 12.—**Unstable roadbank in area of Fullerton cherty silt loam, 10 to 15 percent slopes.**

Terraces and waterways for control of erosion generally are suited to the cultivable uplands. Stones, shallowness, and irregular and steep topography are detrimental soil features. On slopes of 10 percent, terraces are difficult to construct and maintain. In addition, erodibility of the soil and difficulty in establishing vegetation interfere with the establishment of waterways. A seasonal high water table limits the use of equipment in shaping and seeding waterways.

The characteristics considered detrimental to the use of the soils as drainage fields for septic tanks are slow permeability, low water-holding capacity, shallowness, poor surface and subsurface drainage, overflow, and a seasonal high water table.

TABLE 11.--ENGINEERING

Tests performed by State Highway Department of Georgia in cooperation with U.S. Department of Commerce, Officials (AASHO), except

Soil name and location of sample	Parent material	Depth	Horizon	Moisture-density data 1/		Liquid limit	Plasticity index
				Maximum dry density	Optimum moisture		
		In.		Lb. per cu. ft.	Pct.		
Christian fine sandy clay loam:							
1 mile NE. of Union Grove Baptist Church. (Ortho)	Cherty limestone and interbedded sandstone.	0 to 6-----	Ap----	118	13	20	6
		13 to 31---	B22t--	107	19	34	12
Report No. S60-Ga-64-13-1, 3, and 5.		49 to 78+--	B23t--	96	25	37	13
2 miles W. of U.S. Highway No. 41 and 150 yards N. of Bartow-Gordon County line. (Heavier than ortho)	Cherty limestone and interbedded sandstone.	0 to 5-----	Ap----	119	14	22	9
		19 to 30---	B22t--	103	21	36	13
Report No. S60-Ga-64-14-1, 4, and 5.		30 to 50+--	B23t--	105	20	35	13
300 yards E. of Sonoraville School and 100 feet N. of State Highway No. 53. (Lighter than ortho)	Cherty limestone and interbedded sandstone.	0 to 6-----	Ap----	120	11	18	7
		12 to 27---	B21t--	120	11	21	8
Report No. S60-Ga-64-15-1, 3, and 4.		27 to 38+--	B3----	106	19	34	13
Huntington silt loam, acid variant, local alluvium:							
0.4 mile S. of Sugar Valley. (Ortho)	Local alluvium---	10 to 24---	A1----	104	19	33	12
		31 to 50---	Bb----	105	18	37	15
Report No. S60-Ga-64-12-2 and 4.							
150 yards WSW. of glass factory on Nashville, Chattanooga and St. Louis Railroad. (More development than ortho)	Local alluvium---	0 to 15----	A1----	107	17	29	10
		34 to 56---	Bb----	107	18	27	5
Report No. S60-Ga-64-16-1 and 4.							
100 yards E. of road intersection and 1.6 miles S. of State Highway No. 53. (Very little development)	Local alluvium---	0 to 22----	A1----	111	14	27	9
		42 to 72+-	Bb----	107	18	32	14
Report No. S60-Ga-64-17-1 and 5.							

See footnotes at end of table.

TEST DATA

Bureau of Public Roads (BPR), in accordance with standard procedures of American Association of State Highway as stated in footnote 2]

Volume change 2/			Mechanical analysis 3/								Classification	
			Percentage passing sieve--				Percentage smaller than--					
Shrinkage	Swell	Total volume change	No. 4 (4.7 mm.)	No. 10 (2.0 mm.)	No. 40 (0.42 mm.)	No. 200 (0.074 mm.)	0.05 mm.	0.02 mm.	0.005 mm.	0.002 mm.	AASHO	Unified 4/
Pct.	Pct.	Pct.										
6.7	2.7	9.4	5/99	95	92	56	50	42	31	26	A-4(4)----	ML-CL.
9.7	2.1	11.8	100	98	96	75	72	70	56	51	A-6(9)----	ML-CL.
11.6	1.1	12.7	100	98	96	86	85	82	70	65	A-6(9)----	ML-CL.
9.1	0.7	9.8	5/98	93	88	68	65	57	39	31	A-4(7)----	CL.
7.0	2.3	9.3	6/91	78	75	62	60	58	62	42	A-6(7)----	ML-CL.
9.6	1.2	10.8	6/98	93	89	74	72	69	57	50	A-6(9)----	ML-CL.
6.7	0.4	7.1	100	99	96	59	54	48	36	29	A-4(5)----	ML-CL.
10.3	2.9	13.2	100	98	94	66	58	52	37	32	A-4(6)----	CL.
10.9	1.7	12.6	---	100	98	78	75	70	61	55	A-6(9)----	CL.
11.9	1.0	12.9	100	98	95	90	87	80	52	41	A-6(9)----	CL.
10.8	2.7	13.5	6/86	74	69	64	64	60	44	36	A-6(8)----	CL.
11.4	0.8	12.2	5/96	88	85	75	72	65	42	33	A-4(8)----	CL.
11.3	2.7	14.0	5/98	92	88	81	81	77	53	46	A-4(8)----	ML-CL.
10.5	1.3	11.8	5/98	92	89	87	84	73	51	34	A-4(8)----	CL.
10.2	2.4	12.6	7/93	86	80	68	66	62	48	41	A-6(8)----	CL.

TABLE 11.--ENGINEERING

Soil name and location of sample	Parent material	Depth	Horizon	Moisture density data 1/		Liquid limit	Plasticity index
				Maximum dry density	Optimum moisture		
		In.		Lb. per cu. ft.	Pct.		
Monongahela fine sandy loam:							
1.9 miles SW. of Pine Chapel Methodist Church. (Ortho) Report No. S60-Ga-64-9-1, 3, and 6.	Old alluvium----	0 to 7-----	Ap---	112	12	(8/)	(8/)
		14 to 26---	B21--	117	12	23	7
		52 to 62+--	B23--	99	22	50	19
100 yards W. and 0.7 mile S. of Oostanaula River bridge on U.S. Highway No. 41. (Too red) Report No. S60-Ga-64-11-1, 6, and 7.	Old alluvium----	0 to 8-----	Ap---	114	12	20	(8/)
		37 to 52---	B22--	100	21	45	12
		52 to 65---	B23--	95	24	47	14
590 yards E. of Oostanaula School. (Red mottling in B horizon) Report No. S60-Ga-64-10-1, 4, and 6.	Old alluvium----	0 to 7-----	Ap---	105	16	(8/)	(8/)
		16 to 33---	B21--	115	12	25	9
		43 to 60---	B23--	98	23	45	16
Montevallo shaly silt loam:							
100 yards NE. of crossroads at Curryville. Report No. S60-Ga-64-1-1, 3, and 4.	Shale and interbedded dikes of limestone.	0 to 4-----	Ap---	99	19	38	10
		7 to 17----	B----	92	22	53	19
		17 to 45+--	B3---	93	22	55	22
0.8 mile S. of New Zion Baptist Church, W. of Calhoun. Report No. S60-Ga-64-8-1, 3, and 4.	Shale and interbedded dikes of limestone.	0 to 7-----	Ap---	102	16	32	(8/)
		19 to 40---	B----	96	25	25	(8/)
		40 to 60+--	C----	116	13	30	6

See footnotes at end of table.

TEST DATA--Continued

Volume change 2/			Mechanical analysis 3/								Classification	
			Percentage passing sieve--				Percentage smaller than--					
Shrinkage	Swell	Total volume change	No. 4 (4.7 mm.)	No. 10 (2.0 mm.)	No. 40 (0.42 mm.)	No. 200 (0.074 mm.)	0.05 mm.	0.02 mm.	0.005 mm.	0.002 mm.	AASHO	Unified 4/
Pct.	Pct.	Pct.										
3.1	3.7	6.8	100	99	94	66	58	44	22	14	A-4(6)---	ML-CL.
6.3	5.3	11.6	100	98	96	82	76	58	37	29	A-4(8)----	ML-CL.
9.5	1.4	10.9	100	99	99	89	85	73	58	52	A-7-5(14)-	ML.
2.8	5.8	8.6	5/98	93	87	70	64	46	21	15	A-4(7)----	ML.
11.1	2.0	13.1	---	100	98	85	80	70	59	53	A-7-5(10)-	ML.
12.4	1.7	14.1	100	99	98	92	89	84	72	67	A-7-5(11)-	ML.
4.0	8.1	12.1	5/99	97	93	75	63	44	21	8	A-4(8)----	ML.
7.8	2.1	9.9	---	100	98	85	82	68	42	33	A-4(8)----	CL.
9.5	1.1	10.6	100	98	98	90	88	78	59	53	A-7-6(11)-	ML.
9.4	10.4	19.8	6/93	83	78	56	54	48	34	33	A-4(4)----	ML.
15.5	15.2	30.7	5/98	88	84	76	74	66	53	47	A-7-5(15)-	MH.
13.8	12.1	25.9	5/91	76	67	59	57	47	37	32	A-7-5(12)-	MH.
5.6	4.6	10.2	6/92	76	63	54	51	39	27	20	A-4(4)----	ML.
8.8	7.1	15.9	6/90	74	65	58	58	53	43	37	A-4(5)----	ML.
4.1	4.8	8.9	9/39	24	22	19	18	16	11	10	A-1-b(0)--	GM-GC.

TABLE 11.--ENGINEERING

Soil name and location of sample	Parent material	Depth	Horizon	Moisture-density data 1/		Liquid limit	Plasticity index
				Maximum dry density	Optimum moisture		
		In.		Lb. per cu. ft.	Pct.		
Rarden silt loam:							
125 yards W. of Town Creek bridge, on State Highway 156. Report No. S60-Ga-64-7-1, 2, and 3.	Shale and interbedded dikes of limestone.	0 to 6----	Ap----	100	19	42	12
		6 to 16---	B2t---	89	26	68	33
		16+	C-----	110	12	35	9

1/ Based on AASHO Designation: T 99-57, Method A (2).

2/ Based on "A System of Soil Classification" by W. F. Abercrombie (1).

3/ Mechanical analysis according to AASHO Designation: T 88-57 (2). Results by this procedure may differ somewhat from results obtained by the soil survey procedure of the Soil Conservation Service (SCS). In the AASHO procedure, the fine material is analyzed by the hydrometer method, and the various grain-size fractions are calculated on the basis of all the material, including that coarser than 2 millimeters in diameter. In the SCS soil survey procedure, the fine material is analyzed by the pipette method, and the material coarser than 2 millimeters in diameter is excluded from calculations of grain-size fractions. The mechanical analysis data used in this table are not suitable for naming textural classes for soils.

General soil conditions affecting engineering

Considerable rock will have to be excavated if roads are constructed on the Bodine, Gilpin, Dekalb, and Steekee soils; on the slaty phases of the Montevallo soils; and on the very rocky Colbert soils. This stony and rocky material can be used in the lower part of embankments, but the stones may prevent the use of tamping rollers.

In soils underlain by shale, road cuts 15 to 20 feet deep can be made with earth-moving equipment, generally without blasting. In most areas underlain by shale, however, there are widely spaced limestone boulders that are from 3 to 10 feet or more in diameter.

Earthwork can be performed on well-drained soils in all seasons, except during prolonged wet periods, when proper compaction is difficult. Such periods can be expected late in winter and early in spring. Short wet periods occur throughout the year.

Frost action is of concern to engineers in the design and construction of roads, airports, foundations, retaining walls, and, to a lesser extent, cut and fill slopes. Frost action occurs when a frost-susceptible soil contains enough water for ice lenses to form and the temperature drops to freezing. Soils vary considerably in their susceptibility to frost. Sand and gravel that contain only a small amount of fine-grained material are least affected; clay is moderately susceptible; silt and fine sand are highly susceptible. Most soils in the county contain a large amount of fine-grained material and, consequently, are frost susceptible to some degree. Subfreezing temperatures generally are of short duration but cause considerable frost action in susceptible soils once or twice each winter.

Erosion of road shoulders and slopes is a problem unless a good vegetative cover is maintained. Low natural fertility and low available moisture capacity are problems to be considered in the establishment and maintenance of a vegetative cover.

A detailed soil profile is described for each soil series in the section "Genesis, Morphology, and Classification of Soils." This additional information may be useful in engineering. Review of the section "General Soil Map" will help the reader to understand the physical features of the soils and landscape and may be helpful in engineering.

TEST DATA--Continued

Volume change 2/			Mechanical analysis 3/								Classification	
			Percentage passing sieve--				Percentage smaller than--					
Shrinkage	Swell	Total volume change	No. 4 (4.7 mm.)	No. 10 (2.0 mm.)	No. 40 (0.42 mm.)	No. 200 (0.074 mm.)	0.05 mm.	0.02 mm.	0.005 mm.	0.002 mm.	AASHO	Unified 4/
Pct.	Pct.	Pct.										
10.9	7.5	18.4	6/90	69	53	48	47	40	26	20	A-7-5(4)--	SM.
17.6	9.2	26.8	6/80	56	54	52	51	50	47	44	A-7-5(12)-	MH.
6.8	5.0	11.8	9/51	33	24	22	21	20	14	12	A-2-4(0)--	GM-GC.

4/ SCS and BPR have agreed to consider that all soils having plasticity indexes within two points from A-line are to be given borderline classifications. Examples of borderline classifications obtained by this use are GM-GC, and ML-CL.

5/ 100 percent passes the 3/8-inch sieve.

6/ 100 percent passes the 3/4-inch sieve.

7/ 100 percent passes the 1 1/2-inch sieve.

8/ Nonplastic.

9/ 100 percent passes the 2-inch sieve.

Genesis, Morphology, and Classification of Soils

This section consists of two main parts. The first part discusses the factors of soil formation as they relate to the development of soils in Gordon County. The second discusses the nine great soil groups in the county, classifies the soil series according to great soil groups and orders, and describes the characteristics of each group.

Factors of Soil Formation

Soil is the product of parent material, climate, living organisms, topography, and time. The nature of the soil at any given place depends on the combination of these five major factors at that particular place. These five factors have had an effect on the genesis of every soil throughout the world.

The relative importance of the factors differs from place to place; sometimes one factor has more effect on the formation of a soil and sometimes another. In extreme cases one factor may dominate and determine most of the soil properties, as is common when the parent material consists of pure quartz sand, which is highly resistant to change. Soils derived from pure quartz sand commonly have faint horizons, but a distinct profile can be formed under certain vegetation, if the topography is low and flat and the water table is high. Thus, for every soil, the past combination of the five major factors is of first importance to its present character.

Climate and vegetation are the active factors of soil genesis. They act on the parent material and change it into a natural body having definite characteristics. The effects of climate and vegetation on the parent material are conditioned by relief. Relief affects surface drainage, the quantity of water that percolates through the soil, the rate of erosion, and the kind of vegetation that grows on the soil. Time is needed for changing the parent material into soil. Normally, a long interval is required for the development of distinct soil horizons.

The five factors that affect soil formation are discussed in the following paragraphs.

TABLE 12.--BRIEF DESCRIPTIONS OF THE SOILS AND THEIR

Map symbol	Soil	Description of soil and site	Depth from surface (typical profile)	Percentage passing sieve--		
				No. 4 (4.7 mm.)	No. 10 (2.0 mm.)	No. 200 (0.074 mm.)
			In.			
AaB2	Allen fine sandy loam, 2 to 6 percent slopes, eroded.	About 8 to 16 inches of fine sandy loam over 20 to 64 inches of sandy clay loam, underlain by shale and cherty limestone at depth of 4 to 7 feet. Well drained. Seasonally high water table at depth of more than 15 feet.	0 to 16--- 16 to 50+-	90 to 100- 90 to 100-	85 to 95--- 85 to 95---	50 to 60---- 60 to 70----
AaC2	Allen fine sandy loam, 6 to 10 percent slopes, eroded.					
AaD	Allen fine sandy loam, 10 to 15 percent slopes.					
AaD2	Allen fine sandy loam, 10 to 15 percent slopes, eroded.					
AaE	Allen fine sandy loam, 15 to 25 percent slopes.					
AbC3	Allen fine sandy clay loam, 6 to 10 percent slopes, severely eroded.					
AbE3	Allen fine sandy clay loam, 15 to 25 percent slopes, severely eroded.					
AyF	Allen stony fine sandy loam, 25 to 60 percent slopes.					
Atk	Atkins silt loam.	About 5 to 10 feet of silt loam. Depth to weathered shale and hard limestone 5 to 10 feet. Poorly drained soil on flood plains; subject to frequent flooding. Seasonally high water table at depth of less than 1 foot.	0 to 8---- 8 to 50+--	100------- 100-------	100-------- 100--------	90 to 95---- 80 to 100---
BzE	Bodine very stony silt loam, 15 to 25 percent slopes.	About 1 foot to 1.5 feet of very stony silt loam over very cherty to stony silty clay loam. Depth to cherty limestone bedrock 1 foot to 30 feet or more. Excessively drained. Seasonally high water table at depth of more than 15 feet.	0 to 15--- 15 to 30+-	65 to 80-- 5 to 15---	60 to 75--- 5 to 10----	30 to 40---- 5 to 10-----
BzF	Bodine very stony silt loam, 25 to 60 percent slopes.					

ESTIMATED PHYSICAL PROPERTIES SIGNIFICANT IN ENGINEERING

Classification			Permeability	Available water capacity	Reaction	Shrink-swell potential
Dominant USDA texture	Unified	AASHO				
			In. per hr.	In. per in. of depth	pH	
Fine sandy loam---	ML or CL---	A-4---------	2.5 to 5.0---	0.13 to 0.18--	4.5 to 5.0--	Low.
Sandy clay loam---	CL---------	A-6---------	0.8 to 2.5---	0.13 to 0.18--	4.5 to 5.0--	Moderate.
Silt loam--------	ML or CL---	A-4 or A-6--	0.8 to 2.5---	0.18 to 0.20--	4.5 to 5.0--	Low to moderate.
Silt loam--------	ML or CL---	A-4 or A-6--	0.8 to 2.5---	0.18 to 0.20--	4.5 to 5.0--	Low to moderate.
Very stony silt loam.	SM---------	A-4 or A-2--	5.0 to 10.0--	0.05 to 0.10--	4.0 to 4.5--	Low.
Very cherty silty clay loam.	GP-GM------	A-2 or A-1--	5.0 to 10.0--	0.05 to 0.10--	4.0 to 4.5--	Low.

TABLE 12.--BRIEF DESCRIPTIONS OF THE SOILS AND THEIR ESTIMATED

Map symbol	Soil	Description of soil and site	Depth from surface (typical profile)	Percentage passing sieve--		
				No. 4 (4.7 mm.)	No. 10 (2.0 mm.)	No. 200 (0.074 mm.)
			In.			
CBA	Captina silt loam, 0 to 2 percent slopes.	About 1.5 to 3 feet of silt loam and silty clay loam over 8 to 24 inches of firm, compact, brittle silt loam (fragipan). Depth to shale and limestone bedrock 4 to 8 feet. Moderately well drained. Seasonally high water table at depth of 1 to 5 feet.	0 to 12--- 12 to 28-- 28 to 54+-	95 to 100- 95 to 100- 95 to 100-	90 to 95-- 90 to 95-- 80 to 90--	75 to 85--- 80 to 90--- 70 to 80---
CDB	Christian fine sandy loam, 2 to 6 percent slopes.	About 8 to 12 inches of fine sandy loam over 4 to 7 feet of predominantly clay loam, underlain by sandstone and limestone at depth of 5 to 8 feet. Well-drained soils on uplands. Seasonally high water table at depth of more than 15 feet.	0 to 11--- 11 to 75+-	95 to 100- 90 to 100-	90 to 100-- 75 to 100--	40 to 50--- 60 to 80---
CDC	Christian fine sandy loam, 6 to 10 percent slopes.					
CDD	Christian fine sandy loam, 10 to 15 percent slopes.					
CDE	Christian fine sandy loam, 15 to 25 percent slopes.					
CEB3	Christian fine sandy clay loam, 2 to 6 percent slopes, severely eroded.					
CEC3	Christian fine sandy clay loam, 6 to 10 percent slopes, severely eroded.					
CED3	Christian fine sandy clay loam, 10 to 15 percent slopes, severely eroded.					
CEE3	Christian fine sandy clay loam, 15 to 25 percent slopes, severely eroded.					

PHYSICAL PROPERTIES SIGNIFICANT IN ENGINEERING--CONTINUED

Classification			Permeability	Available water capacity	Reaction	Shrink-swell potential
Dominant USDA texture	Unified	AASHO				
			In. per hr.	In. per in. of depth	pH	
Silt loam---------	CL or ML---	A-4---------	0.8 to 2.5---	0.18 to 0.25--	4.5 to 5.0--	Moderate.
Silty clay loam---	CL or ML---	A-6 or A-4--	0.2 to 0.8---	0.10 to 0.12--	4.5 to 5.0--	Moderate.
Silt loam---------	ML or CL---	A-4---------	0.05 to 0.2--	0.15 to 0.20--	4.5 to 5.0--	Low.
Fine sandy loam---	SM or SC---	A-4---------	5.0 to 10.0--	0.15 to 0.20--	4.5 to 5.0--	Low.
Clay loam---------	ML or CL---	A-6---------	2.5 to 5.0---	0.15 to 0.20--	4.5 to 5.0--	Moderate.

TABLE 12.--BRIEF DESCRIPTIONS OF THE SOILS AND THEIR ESTIMATED

Map symbol	Soil	Description of soil and site	Depth from surface (typical profile)	Percentage passing sieve--		
				No. 4 (4.7 mm.)	No. 10 (2.0 mm.)	No. 200 (0.074 mm.)
			In.			
CHB	Clarksville cherty silt loam, 2 to 6 percent slopes.	About 1 foot to 1.5 feet of cherty silt loam over 2 to 5 feet of cherty silty clay loam that becomes very cherty in lower part. Depth to bedrock 10 to 20 feet or more. Well-drained soils that developed in residuum weathered from cherty limestone. On uplands. Seasonally high water table at depth of more than 15 feet.	0 to 15--- 15 to 40--	55 to 75-- 35 to 50--	45 to 65-- 30 to 45--	35 to 50--- 25 to 40---
CHC2	Clarksville cherty silt loam, 6 to 10 percent slopes, eroded.		40 to 60+-	30 to 45--	25 to 40--	20 to 35---
CHD	Clarksville cherty silt loam, 10 to 15 percent slopes.					
CHE	Clarksville cherty silt loam, 15 to 25 percent slopes.					
CHE2	Clarksville cherty silt loam, 15 to 25 percent slopes, eroded.					
CID3	Clarksville cherty silty clay loam, 10 to 15 percent slopes, severely eroded.					
CME	Colbert very rocky silt loam, 15 to 25 percent slopes.	About 4 inches of silt loam over plastic to very plastic clay, underlain by limestone at depth of 10 to 24 inches. Moderately well drained soil on low, rolling hills. Limestone outcrops common. Seasonally high water table at depth of more than 10 feet.	0 to 4---- 4 to 15--- 15+-------	90 to 100- 95 to 100- ----------	80 to 95--- 95 to 100-- ----------	80 to 90--- 95 to 100-- ----------

PHYSICAL PROPERTIES SIGNIFICANT IN ENGINEERING--CONTINUED

Classification			Permeability	Available water capacity	Reaction	Shrink-swell potential
Dominant USDA texture	Unified	AASHO				
			In. per hr.	In. per in. of depth	pH	
Cherty silt loam--	GM to SC---	A-4--------	2.5 to 5.0---	0.12 to 0.15--	4.5 to 5.0--	Low.
Cherty silty clay loam.	GM or GC---	A-2 or A-4-	5.0 to 10.0--	0.10 to 0.15--	4.5 to 5.0--	Low.
Very cherty silt loam.	GM or GC---	A-2--------	5.0 to 10.0--	0.05 to 0.10--	4.5 to 5.0--	Low.
Very rocky silt loam.	ML or CL---	A-6 or A-7--	0.2 to 0.8---	0.12 to 0.18---	5.6 to 6.0--	Moderate.
Clay----------	CH or MH---	A-7--------	0.05 to 0.2--	0.08 to 0.10---	6.6 to 7.3--	Very high.
Limestone---------	----------	----------	----------	----------	----------	

TABLE 12.--BRIEF DESCRIPTIONS OF THE SOILS AND THEIR ESTIMATED

Map symbol	Soil	Description of soil and site	Depth from surface (typical profile)	Percentage passing sieve--		
				No. 4 (4.7 mm.)	No. 10 (2.0 mm.)	No. 200 (0.074 mm.)
			In.			
CRA	Conasauga silt loam, 0 to 2 percent slopes.	About 0.5 to 1 foot of silt loam over 2 to 4 feet of extremely firm silty clay and shaly silty clay loam. Bedrock at depth of 1 to 5 feet. Moderately well drained and somewhat poorly drained soils that developed in residuum weathered from shale and limestone. Few limestone outcrops. Seasonally high water table at depth of 1 to 10 feet.	0 to 6----	95 to 100-	95 to 100--	85 to 90---
			6 to 26---	90 to 95--	85 to 90---	80 to 90---
CRB	Conasauga silt loam, 2 to 6 percent slopes.		26 to 40--	85 to 95--	75 to 85---	75 to 85---
			40 to 48+-	----------	----------	----------
CRB2	Conasauga silt loam, 2 to 6 percent slopes, eroded.					
CSB	Conasauga shaly complex, 2 to 6 percent slopes.					
CSB2	Conasauga shaly complex, 2 to 6 percent slopes, eroded.					
CSC2	Conasauga shaly complex, 6 to 10 percent slopes, eroded.					
CSC3	Conasauga shaly complex, 6 to 10 percent slopes, severely eroded.					
CSD	Conasauga shaly complex, 10 to 15 percent slopes.					
CUB	Cumberland loam, 2 to 6 percent slopes.	About 0.5 to 1 foot of loam over 3 to 6 feet of silty clay, underlain by shale or limestone at depth of 4 to 7 feet. Well-drained old alluvial soils on rolling uplands. Seasonally high water table at depth of more than 15 feet.	0 to 8----	95 to 100-	90 to 100--	65 to 75---
			8 to 50---	95 to 100-	90 to 100--	75 to 85---
CUC2	Cumberland loam, 6 to 10 percent slopes, eroded.					
CVB3	Cumberland silty clay loam, 2 to 6 percent slopes, severely eroded.					
CVC3	Cumberland silty clay loam, 6 to 10 percent slopes, severely eroded.					

1/ The shaly complexes are mildly alkaline in some places.

PHYSICAL PROPERTIES SIGNIFICANT IN ENGINEERING--CONTINUED

Classification			Permeability	Available water capacity	Reaction	Shrink-swell potential
Dominant USDA texture	Unified	AASHO				
			In. per hr.	In. per in. of depth	pH	
Silt loam	ML or CL	A-4	0.8 to 2.5	0.18 to 0.25	1/4.5 to 5.0	Moderate.
Silty clay	CL or CH	A-7	0.05 to 0.2	0.10 to 0.15	1/4.5 to 5.0	High.
Shaly silty clay loam.	ML or CL	A-6	0.2 to 0.8	0.08 to 0.12	1/4.5 to 5.0	Moderate.
Soft shale	---	---	---	---	---	
Loam	CL	A-6	0.8 to 2.5	0.20 to 0.25	4.1 to 4.5	Moderate.
Silty clay	CL or CH	A-7	0.8 to 2.5	0.12 to 0.18	4.5 to 5.0	High.

TABLE 12.--BRIEF DESCRIPTIONS OF THE SOILS AND THEIR ESTIMATED

Map symbol	Soil	Description of soil and site	Depth from surface (typical profile)	Percentage passing sieve--		
				No. 4 (4.7 mm.)	No. 10 (2.0 mm.)	No. 200 (0.074 mm.)
			In.			
DdB2	Dewey silt loam, 2 to 6 percent slopes, eroded.	About 1 foot of silt loam over 2 to 6 feet of silty clay or silty clay loam, underlain by limestone at depth of 10 to 20 feet. Well-drained soils on uplands. Seasonally high water table at depth of more than 15 feet.	0 to 8----	95 to 100-	95 to 100--	80 to 90----
			8 to 44---	95 to 100-	85 to 95---	65 to 80----
DdC2	Dewey silt loam, 6 to 10 percent slopes, eroded.		44 to 60+-	95 to 100-	80 to 90---	70 to 80----
DeC3	Dewey silty clay loam, 6 to 10 percent slopes, severely eroded.					
DeD3	Dewey silty clay loam, 10 to 15 percent slopes, severely eroded.					
DeE3	Dewey silty clay loam, 15 to 25 percent slopes, severely eroded.					
Ens	Ennis silt loam, local alluvium.	About 2 feet of silt loam over 2.5 to 4 feet of silty clay loam. Limestone bedrock is at depth of 6 to 10 feet. Well-drained local alluvial soil on flats. Seasonally high water table at depth of 4 to 10 feet.	0 to 26---	90 to 100-	85 to 100--	80 to 95----
			26 to 50+-	90 to 100-	85 to 100--	80 to 95----
EdA	Etowah loam, 0 to 2 percent slopes.	About 1 foot of loam over about 3 feet of silty clay loam, underlain by silty clay to a depth of 6 to 10 feet. Shale bedrock at depth of 6 to 10 feet. Seasonally high water table at depth of more than 15 feet.	0 to 15---	95 to 100-	90 to 100--	60 to 80---
EdB	Etowah loam, 2 to 6 percent slopes.		15 to 32--	95 to 100-	90 to 100--	85 to 95---
EdC	Etowah loam, 6 to 10 percent slopes.		32 to 52+-	90 to 95--	80 to 90---	60 to 70---

PHYSICAL PROPERTIES SIGNIFICANT IN ENGINEERING--CONTINUED

Classification			Permeability	Available water capacity	Reaction	Shrink-swell potential
Dominant USDA texture	Unified	AASHO				
			In. per hr.	In. per in. of depth	pH	
Silt loam	ML or CL	A-6	0.8 to 2.5	0.18 to 0.25	4.1 to 4.5	Moderate.
Silty clay	CL	A-7	0.8 to 2.5	0.10 to 0.15	4.5 to 5.0	High.
Silty clay loam	CL	A-6 or A-7	0.8 to 2.5	0.12 to 0.18	4.5 to 5.0	High.
Silt loam	ML or CL	A-4	2.5 to 5.0	0.20 to 0.25	4.5 to 5.0	Moderate.
Silty clay loam	ML or CL	A-6	0.8 to 2.5	0.15 to 0.18	4.5 to 5.0	Moderate.
Loam	ML or CL	A-4 or A-6	2.5 to 5.0	0.20 to 0.25	4.5 to 5.0	Moderate.
Silty clay loam	CL	A-6	0.8 to 2.5	0.12 to 0.18	4.5 to 5.0	Moderate.
Silty clay	CH	A-7 or A-6	0.8 to 2.5	0.10 to 0.15	4.5 to 5.0	High.

TABLE 12.--BRIEF DESCRIPTIONS OF THE SOILS AND THEIR ESTIMATED

Map symbol	Soil	Description of soil and site	Depth from surface (typical profile)	Percentage passing sieve--		
				No. 4 (4.7 mm.)	No. 10 (2.0 mm.)	No. 200 (0.074 mm.)
			In.			
FfB2	Farragut silt loam, 2 to 6 percent slopes, eroded.	About 0.5 foot of silt loam over 3.5 to 6 feet of silty clay, underlain by shale and limestone at depth of 4 to 7 feet. Well-drained soils on rolling uplands. Seasonally high water table at depth of more than 15 feet.	0 to 7----	95 to 100-	90 to 100--	70 to 85----
			7 to 50+--	95 to 100-	95 to 100--	80 to 95----
FgB3	Farragut silty clay loam, 2 to 6 percent slopes, severely eroded.					
FgC3	Farragut silty clay loam, 6 to 10 percent slopes, severely eroded.					
FgD3	Farragut silty clay loam, 10 to 15 percent slopes, severely eroded.					
FmB	Fullerton cherty silt loam, 2 to 6 percent slopes.	About 1 foot of cherty silt loam over 2.5 feet of silty clay loam and silty clay, underlain by cherty silty clay that contains a few stones. Depth to cherty limestone bedrock 15 to 30 feet or more. Well-drained cherty soils. Seasonally high water table at depth of more than 15 feet.	0 to 13---	70 to 90--	65 to 85---	55 to 75----
			13 to 26--	70 to 85--	65 to 80---	60 to 75----
			26 to 55--	60 to 80--	55 to 75---	50 to 75----
FmC	Fullerton cherty silt loam, 6 to 10 percent slopes.		55 to 65+-	35 to 50--	30 to 45---	15 to 40----
FmD	Fullerton cherty silt loam, 10 to 15 percent slopes.					
FmE	Fullerton cherty silt loam, 15 to 25 percent slopes.					
FmF	Fullerton cherty silt loam, 25 to 60 percent slopes.					
FnC3	Fullerton cherty silty clay loam, 6 to 10 percent slopes, severely eroded.					
FnD3	Fullerton cherty silty clay loam, 10 to 15 percent slopes, severely eroded.					
FnE3	Fullerton cherty silty clay loam, 15 to 25 percent slopes, severely eroded.					

PHYSICAL PROPERTIES SIGNIFICANT IN ENGINEERING--CONTINUED

Classification			Permeability	Available water capacity	Reaction	Shrink-swell potential
Dominant USDA texture	Unified	AASHO				
			In. per hr.	In. per in. of depth	pH	
Silt loam	ML or CL	A-4	0.8 to 2.5	0.18 to 0.25	4.5 to 5.0	Moderate.
Silty clay	MH or CH	A-7	0.8 to 2.5	0.10 to 0.15	4.5 to 5.0	High.
Cherty silt loam	ML or CL	A-4	0.8 to 2.5	0.15 to 0.20	4.5 to 5.0	Moderate.
Silty clay loam	MH or CH	A-6 to A-7	0.2 to 0.8	0.12 to 0.18	4.5 to 5.0	High.
Silty clay	MH or CH	A-7	0.2 to 0.8	0.10 to 0.15	4.5 to 5.0	High.
Very cherty silty clay loam.	GM or GC	A-2 or A-6	0.8 to 5.0	0.10 to 0.15	4.5 to 5.0	Low to moderate.

TABLE 12.--BRIEF DESCRIPTIONS OF THE SOILS AND THEIR ESTIMATED

Map symbol	Soil	Description of soil and site	Depth from surface (typical profile)	Percentage passing sieve--		
				No. 4 (4.7 mm.)	No. 10 (2.0 mm.)	No. 200 (0.074 mm.)
			In.			
GDF	Gilpin-Dekalb stony complex, 25 to 60 percent slopes.	Gilpin: About 9 inches of stony and gravelly silt loam and fine sandy loam over about 1.5 feet of silty clay loam, underlain by siltstone and shale at depth of 1 to 5 feet. Well drained. Seasonally high water table at depth of more than 15 feet. Dekalb: For description of Dekalb soil see Lehew-Dekalb gravelly fine sandy loam.	0 to 9----- 9 to 25---- 25 to 50+--	60 to 70-- 75 to 85-- ----------	55 to 65--- 70 to 80--- ----------	50 to 60---- 60 to 70---- ----------
Gul	Gullied land.	Variable; network of shallow and deep gullies. Soil material consists of firm to very firm, plastic shaly silty clay loam or clay. Seasonally high water table at depth of 10 feet or more.	----------	---------	----------	----------
Gut	Guthrie silt loam, clay subsoil variant.	About 0.5 foot of silt loam over 4 to 6.5 feet of extremely firm, plastic clay. Limestone at depth of 4 to 7 feet. Poorly drained soil in flats and depressions. Seasonally high water table at depth of 2 feet.	0 to 6----- 6 to 50+---	100------ 100------	95 to 100-- 95 to 100--	85 to 90---- 85 to 95----
HGB HGC	Hartsells fine sandy loam, 2 to 6 percent slopes. Hartsells fine sandy loam, 6 to 10 percent percent slopes.	About 2 feet of fine sandy loam over 4 to 6 feet of sandy clay loam or loam, underlain by slightly weathered sandstone at depth of 5 to 7 feet. Well drained. Seasonally high water table at depth of more than 15 feet.	0 to 20---- 20 to 38--- 38 to 61+--	95 to 100- 95 to 100- 90 to 95--	90 to 95--- 95 to 100-- 90 to 95---	20 to 30---- 30 to 40---- 20 to 30----

PHYSICAL PROPERTIES SIGNIFICANT IN ENGINEERING--CONTINUED

Classification			Permeability	Available water capacity	Reaction	Shrink-swell potential
Dominant USDA texture	Unified	AASHO				
			In. per hr.	In. per in of depth	pH	
Stony silt loam----	ML---------	A-4---------	2.5 to 5.0----	0.10 to 0.15---	4.0 to 4.5---	Low.
Silty clay loam----	CL---------	A-6 or A-7--	0.8 to 2.5----	0.10 to 0.15---	4.5 to 5.0---	Moderate.
Soft shale or siltstone.	----------	----------	----------	----------	----------	
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Silt loam---------	ML or CL---	A-4 to A-6--	0.8 to 2.5---	0.15 to 0.20---	6.1 to 6.5--	Moderate.
Clay--------------	CH---------	A-7---------	0.01 to 0.05-	0.05 to 0.10---	7.4 to 7.8--	High.
Fine sandy loam---	SM---------	A-4---------	2.5 to 5.0---	0.12 to 0.18---	5.1 to 5.5--	Low.
Sandy clay loam---	SC---------	A-6---------	0.8 to 2.5---	0.10 to 0.18---	4.5 to 5.0--	Moderate.
Fine sandy loam and loam.	SM---------	A-4---------	0.8 to 2.5---	0.09 to 0.13---	4.5 to 5.0--	Low.

TABLE 12.--BRIEF DESCRIPTIONS OF THE SOILS AND THEIR ESTIMATED

Map symbol	Soil	Description of soil and site	Depth from surface (typical profile)	Percentage passing sieve--		
				No. 4 (4.7 mm.)	No. 10 (2.0 mm.)	No. 200 (0.074 mm.)
			In.			
HXA	Huntington silt loam, acid variant, local alluvium.	About 2.5 feet of silt loam over 4 to 6 feet of silty clay loam, underlain by limestone at depth of 7 to 10 feet. Well-drained local alluvial soils. Seasonally high water table at depth of 5 to 10 feet.	0 to 31--- 31 to 50+-	95 to 100- 85 to 100-	85 to 100- 70 to 95--	75 to 90--- 60 to 85---
JaC	Jefferson gravelly fine sandy loam, 6 to 10 percent slopes.	About 1 foot of gravelly fine sandy loam over 2 to 5 feet of silty clay loam, underlain by shale or limestone at depth of 3 to 7 feet. Well-drained local alluvial soils on toe slopes and fans. Seasonally high water table at depth of 15 feet or more.	0 to 9---- 9 to 52+--	75 to 85-- 85 to 95--	70 to 80-- 80 to 90--	30 to 40---- 65 to 75----
JaD	Jefferson gravelly fine sandy loam, 10 to 15 percent slopes.					
JaE	Jefferson gravelly fine sandy loam, 15 to 25 percent slopes.					
KjD	Klinesville shaly silt loam, 10 to 15 percent slopes.	About 5 inches of shaly silt loam over shaly silty clay loam. Soft shale at depth of about 10 to 16 inches. Seasonally high water table at depth of more than 15 feet.	0 to 5--- 5 to 11-- 11 to 16+	85 to 95-- 95 to 100- ----------	75 to 85-- 70 to 80-- ----------	60 to 70---- 60 to 70---- ----------
KjE	Klinesville shaly silt loam, 15 to 25 percent slopes.					
KjF	Klinesville shaly silt loam, 25 to 60 percent slopes.					
LIA	Landisburg cherty silt loam, 0 to 2 percent slopes.	About 1 foot of cherty silt loam over 1.5 to 5 feet of silty clay loam. Fragipan at depth of 15 to 30 inches. Limestone or shale bedrock at depth of 2.5 to 6 feet. Cherty local alluvial soils. Seasonally high water table at depth of 2 to 3 feet.	0 to 12-- 12 to 21- 21 to 40- 40 to 50+	85 to 100- 85 to 100- 85 to 100- ----------	80 to 90-- 80 to 90-- 65 to 85-- ----------	60 to 70--- 70 to 80--- 75 to 85--- ----------
LIB	Landisburg cherty silt loam, 2 to 6 percent slopes.					
LIC	Landisburg cherty silt loam, 6 to 10 percent slopes.					

PHYSICAL PROPERTIES SIGNIFICANT IN ENGINEERING--CONTINUED

Classification			Permeability	Available water capacity	Reaction	Shrink-swell potential
Dominant USDA texture	Unified	AASHO	In. per hr.	In. per in. of depth	pH	
Silt loam	ML	A-4	0.8 to 2.5	0.20 to 0.25	4.5 to 5.0	Moderate.
Silty clay loam	ML or CL	A-4 or A-6	0.2 to 0.8	0.12 to 0.18	4.5 to 5.0	Moderate.
Gravelly fine sandy loam.	SM	A-2 or A-4	2.5 to 5.0	0.12 to 0.18	4.5 to 5.0	Low.
Silty clay loam	CL	A-6	0.8 to 2.5	0.12 to 0.18	4.0 to 4.5	Moderate.
Shaly silt loam	ML or CL	A-4	2.5 to 5.0	0.07 to 0.09	4.5 to 5.0	Moderate.
Shaly silty clay loam.	ML or CL	A-6	2.5 to 5.0	0.07 to 0.09	4.5 to 5.0	Moderate.
Soft shale	---	---	---	---	---	
Cherty silt loam	ML or CL	A-4	2.5 to 5.0	0.18 to 0.25	4.5 to 5.0	Moderate.
Silty clay loam	CL	A-6	0.05 to 0.2	0.08 to 0.15	4.5 to 5.0	Moderate.
Silty clay loam	CL	A-6	0.2 to 0.8	0.12 to 0.18	4.1 to 4.5	Moderate.
Slightly weathered shale and chert.	---	---	---	---	---	

TABLE 12.--BRIEF DESCRIPTIONS OF THE SOILS AND THEIR ESTIMATED

Map symbol	Soil	Description of soil and site	Depth from surface (typical profile)	Percentage passing sieve--		
				No. 4 (4.7 mm.)	No. 10 (2.0 mm.)	No. 200 (0.074 mm.)
			In.			
LJA	Leadvale silt loam, 0 to 2 percent slopes.	About 6 inches of silt loam over 3 to 5 feet of silty clay loam, underlain by shale at depth of 3 to 7 feet. Fragipan at depth of 20 to 40 inches. Moderately well drained old local alluvial soils. Seasonally high water table at depth of 2 to 4 feet.	0 to 5----	95 to 100--	90 to 100	80 to 95---
			5 to 25---	95 to 100--	90 to 100--	85 to 100--
LJB	Leadvale silt loam, 2 to 6 percent slopes.		25 to 50+-	95 to 100--	90 to 100--	80 to 100--
LbB	Lehew-Dekalb gravelly fine sandy loams, 2 to 6 percent slopes.	Lehew: About 1 foot of gravelly fine sandy loam over about 2 feet of gravelly clay loam or silty clay loam, underlain by weathered sandstone and shale at depth of 2 to 3 feet. Well-drained soils on uplands. Seasonally high water table at depth of more than 15 feet.	0 to 12---	80 to 90--	75 to 85---	40 to 50---
			12 to 36--	75 to 85--	70 to 80---	60 to 70---
LbC	Lehew-Dekalb gravelly fine sandy loams, 6 to 10 percent slopes.		36 to 56+-	----------	----------	----------
LbD	Lehew-Dekalb gravelly fine sandy loams, 10 to 15 percent slopes.					
LLD3	Lehew-Dekalb gravelly fine sandy clay loams, 10 to 15 percent slopes, severely eroded.	Dekalb: Less than 1 foot of gravelly fine sandy loam over gravelly sandy clay loam; weathered sandstone at depth of 1 to 3 feet.	0 to 7----	75 to 85--	70 to 80---	40 to 50---
			7 to 25---	75 to 85--	70 to 80---	40 to 55---
			25 to 40+-	----------	----------	----------
LaE	Lehew-Ramsey gravelly fine sandy loams, 15 to 25 percent slopes.	Ramsey: Gravelly fine sandy loam to gravelly loam, underlain by sandstone at depth of 8 to 20 inches.	0 to 15---	70 to 85--	65 to 80---	40 to 55----
LaF	Lehew-Ramsey gravelly fine sandy loams, 25 to 60 percent slopes.		15+-------	----------	----------	----------
LhE3	Lehew-Ramsey gravelly fine sandy clay loams, 15 to 25 percent slopes, severely eroded.					

PHYSICAL PROPERTIES SIGNIFICANT IN ENGINEERING--CONTINUED

Classification			Permeability	Available water capacity	Reaction	Shrink-swell potential
Dominant USDA texture	Unified	AASHO	In. per hr.	In. per in. of depth	pH	
Silt loam--------	ML---------	A-4--------	0.8 to 2.5--	0.15 to 0.20---	4.5 to 5.0---	Moderate.
Silty clay loam--	ML or CL---	A-4 or A-6-	0.2 to 0.8--	0.10 to 0.15---	4.5 to 5.0---	Moderate.
Silty clay loam--	CL---------	A-7--------	0.2 to 0.8--	0.12 to 0.18---	4.5 to 5.0---	Moderate.
Gravelly fine sandy loam.	SM---------	A-4--------	2.5 to 5.0--	0.12 to 0.18---	4.5 to 5.0---	Low.
Gravelly clay loam or silty clay loam.	ML or CL---	A-4--------	0.8 to 2.5--	0.13 to 0.17---	4.5 to 5.0---	Moderate.
Soft sandstone---	----------	----------	----------	----------	----------	
Gravelly fine sandy loam.	SM---------	A-4--------	2.5 to 5.0--	0.12 to 0.18---	4.5 to 5.0---	Low.
Gravelly sandy clay loam.	SC, CL-----	A-6--------	0.8 to 2.5--	0.13 to 0.17---	4.5 to 5.0---	Low to moderate.
Slightly weathered sandstone.	----------	----------	----------	----------	----------	
Gravelly fine sandy loam to gravelly loam.	SM, ML-----	A-4--------	2.5 to 5.0--	0.08 to 0.12---	4.5 to 5.0---	Low.
Slightly weathered sandstone.	----------	----------	----------	----------	----------	

TABLE 12.--BRIEF DESCRIPTIONS OF THE SOILS AND THEIR ESTIMATED

Map symbol	Soil	Description of soil and site	Depth from surface (typical profile)	Percentage passing sieve--		
				No. 4 (4.7 mm.)	No. 10 (2.0 mm.)	No. 200 (0.074 mm.)
			In.			
Led	Local alluvial land, moderately wet.	About 2 feet of very fine sandy loam to silt loam over 3 to 5 feet of clay loam, underlain by limestone or shale at depth of 5 to 8 feet. Recent alluvium on first bottoms. Seasonally high water table at depth of 2 feet or more.	0 to 26---	95 to 100-	90 to 100--	80 to 95----
			26 to 50+-	95 to 100-	90 to 100--	85 to 95----
LKB	Locust gravelly fine sandy loam, 2 to 6 percent slopes.	About 8 to 12 inches of gravelly fine sandy loam over 10 to 20 inches of sandy clay loam; 4 to 6 inches of firm, slightly brittle gravelly sandy clay loam (fragipan) at depth of 16 to 24 inches. Shale at depth of 4 to 7 feet. Moderately well drained soil. Seasonally high water table at depth of 4 feet or more.	0 to 9----	75 to 90--	45 to 65---	40 to 50----
			9 to 19---	80 to 95--	60 to 80---	55 to 70----
			19 to 36--	30 to 40--	25 to 35---	15 to 25----
			36 to 48+-	95 to 100-	95 to 100--	80 to 90----
Mel	Melvin silt loam.	About 2 feet of silt loam over cherty clay loam, underlain by limestone or shale at depth of 4 to 10 feet. Poorly drained soil on flood plains. Seasonally high water table at depth of less than 1 foot.	0 to 22---	95 to 100-	95 to 100--	90 to 100---
			22 to 36--	65 to 75--	60 to 70---	55 to 65----
			36 to 50+-	25 to 35--	20 to 30---	15 to 25----

PHYSICAL PROPERTIES SIGNIFICANT IN ENGINEERING--CONTINUED

Classification			Permeability	Available water capacity	Reaction	Shrink-swell potential
Dominant USDA texture	Unified	AASHO				
			In. per hr.	In. per in. of depth	pH	
Very fine sandy loam.	ML--------	A-4--------	2.5 to 5.0---	0.18 to 0.25----	4.5 to 5.0---	Low.
Clay loam---------	CL--------	A-6--------	0.8 to 2.5---	0.15 to 0.20----	4.0 to 4.5---	Moderate.
Gravelly fine sandy loam.	SM--------	A-4--------	2.5 to 5.0---	0.12 to 0.18----	4.5 to 5.0---	Low.
Sandy clay loam---	CL--------	A-6--------	0.8 to 2.5---	0.12 to 0.18----	4.5 to 5.0---	Moderate.
Gravelly clay loam.	GC--------	A-2--------	0.8 to 2.5---	0.08 to 0.13----	4.5 to 5.0---	Moderate.
Silty clay--------	CH--------	A-6 or A-7-	0.05 to 0.2--	0.10 to 0.15----	4.0 to 4.5--	High.
Silt loam--------	ML--------	A-4--------	0.8 to 2.5--	0.18 to 0.25---	4.5 to 5.0--	Moderate.
Cherty clay loam-	CL--------	A-6--------	0.2 to 0.8--	0.08 to 0.15---	6.1 to 6.5--	Moderate.
Cherty loam------	GM--------	A-1--------	2.5 to 5.0--	0.10 to 0.12---	6.6 to 7.3--	Low.

TABLE 12--BRIEF DESCRIPTIONS OF THE SOILS AND THEIR ESTIMATED

Map symbol	Soil	Description of soil and site	Depth from surface (typical profile)	Percentage passing sieve--		
				No. 4 (4.7 mm.)	No. 10 (2.0 mm.)	No. 200 (0.074 mm.)
			In.			
MaB	Monongahela fine sandy loam, 2 to 6 percent slopes.	About 1 foot of fine sandy loam or gravelly silt loam over 1.5 feet of clay loam; underlain by shale or limestone at depth of 6 to 10 feet. Firm, slightly brittle, compacted layer (fragipan) at depth of 20 to 30 inches. Moderately well drained old alluvial soils. Seasonally high water table at depth of 4 to 10 feet or more.	0 to 10----	95 to 100--	90 to 100--	65 to 75---
			10 to 30---	95 to 100--	95 to 100--	80 to 90---
			30 to 48+--	95 to 100--	95 to 100--	85 to 95---
MaC	Monongahela fine sandy loam, 6 to 10 percent slopes.					
MbB	Monongahela gravelly silt loam, 2 to 6 percent slopes.					
MdB	Montevallo shaly silt loam, 2 to 6 percent slopes.	About 0.5 foot of shaly silt loam over 0.5 foot to 1.5 feet of shaly silty clay loam, underlain by shale at depth of 8 to 24 inches. Well-drained soils that formed in material weathered from shale. On uplands. Seasonally high water table at depth of more than 15 feet. Slaty phases underlain by slate at depth of 9 to 20 inches.	0 to 5----	85 to 95--	75 to 85---	60 to 70---
			5 to 10---	90 to 100-	70 to 80---	60 to 70---
MdC	Montevallo shaly silt loam, 6 to 10 percent slopes.		10 to 60+-	----------	----------	----------
McD	Montevallo-Klinesville shaly silt loams, 10 to 15 percent slopes.					
McE	Montevallo-Klinesville shaly silt loams, 15 to 25 percent slopes.					
McF	Montevallo-Klinesville shaly silt loams, 25 to 60 percent slopes.					
McC3	Montevallo-Klinesville shaly silt loams, 6 to 10 percent slopes, severely eroded.					
McD3	Montevallo-Klinesville shaly silt loams, 10 to 15 percent slopes, severely eroded.					
McE3	Montevallo-Klinesville shaly silt loams, 15 to 25 percent slopes, severely eroded.					
MfF	Montevallo slaty silt loam, 25 to 60 percent slopes.					
MfG	Montevallo slaty silt loam, 60 to 85 percent slopes.					

PHYSICAL PROPERTIES SIGNIFICANT IN ENGINEERING--CONTINUED

Classification			Permeability	Available water capacity	Reaction	Shrink-swell potential
Dominant USDA texture	Unified	AASHO				
			In. per hr.	In per in. of depth	pH	
Fine sandy loam---	ML---------	A-4--------	0.8 to 2.5--	0.12 to 0.18---	7.4 to 7.8---	Low.
Clay loam---------	ML or CL---	A-4--------	0.2 to 0.8--	0.15 to 0.20---	4.5 to 5.0---	Moderate.
Silty clay loam---	ML---------	A-7--------	0.2 to 0.8--	0.12 to 0.18---	4.5 to 5.0---	Moderate.
Shaly silt loam---	ML---------	A-4--------	2.5 to 5.0--	0.07 to 0.09--	4.5 to 5.0--	Moderate.
Shaly silty clay loam.	ML or CL---	A-6--------	2.5 to 5.0--	0.07 to 0.09--	4.5 to 5.0--	Moderate.
Shale-------------	----------	----------	----------	----------	----------	

TABLE 12.--BRIEF DESCRIPTIONS OF THE SOILS AND THEIR ESTIMATED

Map symbol	Soil	Description of soil and site	Depth from surface (typical profile)	Percentage passing sieve--		
				No. 4 (4.7 mm.)	No. 10 (2.0 mm.)	No. 200 (0.074 mm.)
			In.			
MeB	Muse silt loam, 2 to 6 percent slopes.	About 0.5 foot of silt loam over 3.5 to 6 feet of silty clay loam, underlain by shale or limestone at depth of 4 to 8 feet. Well-drained old local alluvial soils. Seasonally high water table at depth of 15 feet or more.	0 to 6----	95 to 100-	90 to 100--	80 to 95---
MeB2	Muse silt loam, 2 to 6 percent slopes, eroded.		6 to 51+--	95 to 100-	90 to 100--	85 to 100--
MeC2	Muse silt loam, 6 to 10 percent slopes, eroded.					
NbB	Nolichucky fine sandy loam, 2 to 6 percent slopes.	About 1 foot of fine sandy loam over 3 to 6 feet of fine sandy clay loam, underlain by shale at depth of 4 to 7 feet. Well-drained old alluvial soils on high terraces. Seasonally high water table at depth of more than 15 feet.	0 to 12---	90 to 100-	90 to 100--	40 to 50---
NbC	Nolichucky fine sandy loam, 6 to 10 percent slopes.		12 to 52+-	90 to 100-	90 to 100--	50 to 60---
NbD2	Nolichucky fine sandy loam, 10 to 15 percent slopes, eroded.					
Pop	Pope fine sandy loam.	About 3 to 12 feet of fine sandy loam over shale. Well drained. Seasonally high water table at depth of 5 feet or more.	0 to 50---	100------	95 to 100--	40 to 50---
Pos	Pope shaly silt loam, local alluvium.	About 2 feet of shaly silt loam over 2 feet of silty clay loam, underlain by limestone and shale at depth of 5 to 8 feet. Well-drained recent local alluvial soil in depressions and at head of draws. Seasonally high water table at depth of 4 feet or more.	0 to 28---	80 to 90-	75 to 85--	70 to 80---
			28 to 50+-	90 to 95-	85 to 95--	80 to 90---

PHYSICAL PROPERTIES SIGNIFICANT IN ENGINEERING--CONTINUED

Classification			Permeability	Available water capacity	Reaction	Shrink-swell potential
Dominant USDA texture	Unified	AASHO				
			In. per hr.	In. per in. of depth	pH	
Silt loam---------	ML---------	A-4---------	0.8 to 2.5---	0.18 to 0.25---	5.6 to 6.0--	Moderate.
Silty clay loam---	CL---------	A-6 or A-7--	0.8 to 2.5---	0.12 to 0.18---	4.5 to 5.0--	Moderate.
Fine sandy loam---	SM---------	A-4---------	2.5 to 5.0---	0.12 to 0.18---	4.5 to 5.0--	Low.
Fine sandy clay loam.	CL---------	A-6---------	0.8 to 2.5---	0.10 to 0.18---	4.5 to 5.0--	Moderate.
Fine sandy loam---	SM---------	A-4---------	2.5 to 5.0---	0.12 to 0.18--	5.1 to 5.5--	Low.
Shaly silt loam--	ML---------	A-4---------	2.5 to 5.0--	0.14 to 0.20--	5.6 to 6.0--	Low.
Silty clay loam--	CL---------	A-6---------	0.8 to 2.5--	0.12 to 0.18--	4.5 to 5.0--	Moderate.

TABLE 12.--BRIEF DESCRIPTIONS OF THE SOILS AND THEIR ESTIMATED

Map symbol	Soil	Description of soil and site	Depth from surface (typical profile)	Percentage passing sieve--		
				No. 4 (4.7 mm.)	No. 10 (2.0 mm.)	No. 200 (0.074 mm.)
			In.			
Pur	Purdy silt loam.	About 8 inches of silt loam over about 6 inches of silty clay loam, underlain by silty clay or clay to a depth of 4 feet. Shale at depth of 5 to 8 feet. Poorly drained soil on low terraces. Seasonally high water table at depth of less than 1 foot.	0 to 8-----	100--------	100---------	85 to 95----
			8 to 14----	100--------	100---------	85 to 95----
			14 to 50---	100--------	100---------	80 to 95----
RmB	Rarden silt loam, 2 to 6 percent slopes.	About 6 inches of silt loam over silty clay or clay, underlain by shale and limestone at depth of 16 to 36 inches. Well-drained soils with plastic subsoil, on uplands. Seasonally high water table at depth of more than 15 feet.	0 to 6----	90 to 95--	65 to 85---	40 to 50----
			6 to 23---	75 to 95--	55 to 70---	50 to 75----
			23 to 34--	40 to 60--	30 to 40---	15 to 30----
RmB2	Rarden silt loam, 2 to 6 percent slopes, eroded.		34 to 47+-	----------	----------	----------
RmC2	Rarden silt loam, 6 to 10 percent slopes, eroded.					
RmD2	Rarden silt loam, 10 to 15 percent slopes, eroded.					
RnC3	Rarden shaly silty clay loam, shallow, 6 to 10 percent slopes, severely eroded.					
RnD3	Rarden shaly silty clay loam, shallow, 10 to 15 percent slopes, severely eroded.					
RnE3	Rarden shaly silty clay loam, shallow, 15 to 25 percent slopes, severely eroded.					
Rob	Robertsville silt loam, clay subsoil variant.	About 6 inches of silt loam over cherty silty clay, underlain by limestone or shale at depth of 5 to 10 feet. Poorly drained soil with clayey subsoil, on low terraces. Seasonally high water table at depth of less than 1 foot.	0 to 6----	95 to 100-	95 to 100--	85 to 95----
			6 to 35---	95 to 100-	95 to 100--	95 to 100---
			35 to 45+-	95 to 100-	95 to 100--	95 to 100---

PHYSICAL PROPERTIES SIGNIFICANT IN ENGINEERING--CONTINUED

Classification			Permeability	Available water capacity	Reaction	Shrink-swell potential
Dominant USDA texture	Unified	AASHO				
			In. per hr.	In. per in. of depth	pH	
Silt loam---------	ML or CL---	A-4---------	0.8 to 2.5---	0.18 to 0.25----	4.5 to 5.0---	Moderate.
Silty clay loam---	CL---------	A-6---------	0.2 to 0.8---	0.10 to 0.15----	4.5 to 5.0---	Moderate.
Silty clay or clay.	CL---------	A-6 or A-7--	0.05 to 0.2--	0.10 to 0.15----	4.5 to 5.0---	Moderate.
Silt loam---------	SM---------	A-7---------	0.8 to 2.5---	0.18 to 0.25----	4.5 to 5.0---	Moderate.
Silty clay--------	MH---------	A-7---------	0.2 to 0.8---	0.10 to 0.15----	4.5 to 5.0---	High.
Shaly silty clay--	GM or GC---	A-4---------	0.2 to 0.8---	0.08 to 0.12----	4.5 to 5.0---	High.
Soft shale--------	----------	----------	----------	----------	----------	
Silt loam--------	ML or CL--	A-4--------	0.8 to 2.5--	0.15 to 0.20---	5.6 to 6.0--	Moderate.
Cherty silty clay.	CL--------	A-6--------	0.05 to 0.2-	0.10 to 0.15---	7.4 to 7.8--	Moderate.
Very cherty clay.	CL or CH--	A-6 or A-7-	0.05 to 0.2-	0.10 to 0.15---	7.4 to 7.8--	High.

TABLE 12.--BRIEF DESCRIPTIONS OF THE SOILS AND THEIR ESTIMATED

Map symbol	Soil	Description of soil and site	Depth from surface (typical profile)	Percentage passing sieve--		
				No. 4 (4.7 mm.)	No. 10 (2.0 mm.)	No. 200 (0.074 mm.)
			In.			
Spg	Sandy and gravelly land.	Variable soil material, but in many places about 1 foot of gravelly loam over 1 foot of gravelly sandy clay loam, underlain by 2 to 6 feet of very gravelly sandy loam. Internal drainage impeded by weak fragipan at depth of 15 to 30 inches. Depth to shale 4 to 8 feet. Moderately well drained soils. Seasonally high water table at depth of 1 1/2 feet.	0 to 10---- 10 to 17--- 17 to 30+--	65 to 75--- 75 to 85--- 15 to 25---	55 to 65--- 70 to 80--- 10 to 15---	25 to 35--- 35 to 45--- 5 to 10----
SaA	Sequatchie loam, 0 to 2 percent slopes.	About 9 inches of loam over fine sandy clay loam, underlain by shale and limestone at depth of 5 to 12 feet. Well-drained, friable soils on low terraces. Seasonally high water table at depth of about 7 feet.	0 to 9---- 9 to 48+--	95 to 100-- 95 to 100--	90 to 100-- 90 to 100--	65 to 75--- 70 to 80---
SaB	Sequatchie loam, 2 to 6 percent slopes.					
SaB2	Sequatchie loam, 2 to 6 percent slopes, eroded.					
SbB2	Sequoia silt loam, 2 to 6 percent slopes, eroded.	About 6 inches of silt loam over plastic silty clay, underlain by shale or limestone at depth of 4 to 6 feet. Well-drained soils on uplands. Seasonally high water table at depth of more than 15 feet.	0 to 6---- 6 to 31--- 31 to 50+-	95 to 100-- 95 to 100-- 90 to 95---	95 to 100-- 95 to 100-- 85 to 95---	90 to 95--- 90 to 100-- 80 to 90---
SbC2	Sequoia silt loam, 6 to 10 percent slopes, eroded.					
ScB3	Sequoia silty clay loam, 2 to 6 percent slopes, severely eroded.					
ScC3	Sequoia silty clay loam, 6 to 10 percent slopes, severely eroded.					
ScD3	Sequoia silty clay loam, 10 to 15 percent slopes, severely eroded.					

PHYSICAL PROPERTIES SIGNIFICANT IN ENGINEERING--CONTINUED

Classification			Permeability	Available water capacity	Reaction	Shrink-swell potential
Dominant USDA texture	Unified	AASHO				
			In. per hr.	In. per in. of depth	pH	
Gravelly loam	SM	A-2	5.0 to 10.0	0.20 to 0.25	4.5 to 5.0	Low.
Gravelly sandy clay loam.	SC	A-6	2.5 to 5.0	0.12 to 0.18	4.5 to 5.0	Moderate.
Gravelly sandy loam	GW	A-1	10.0+	0.01 to 0.05	4.5 to 5.0	Low.
Loam	ML	A-4	2.5 to 5.0	0.20 to 0.25	5.1 to 5.5	Low.
Fine sandy clay loam	ML or CL	A-4 or A-6	0.8 to 2.5	0.15 to 0.20	4.5 to 5.0	Moderate.
Silt loam	ML or CL	A-4 or A-6	0.2 to 0.8	0.18 to 0.25	4.5 to 5.0	Moderate.
Silty clay	CH or MH	A-7	0.2 to 0.8	0.10 to 0.15	4.5 to 5.0	High.
Silty clay loam	CL	A-6	0.2 to 0.8	0.12 to 0.18	4.5 to 5.0	High.

TABLE 12.--BRIEF DESCRIPTIONS OF THE SOILS AND THEIR ESTIMATED

Map symbol	Soil	Description of soil and site	Depth from surface (typical profile)	Percentage passing sieve--		
				No. 4 (4.7 mm.)	No. 10 (2.0 mm.)	No. 200 (0.074 mm.)
			In.			
SdF	Steekee stony fine sandy loam, 25 to 60 percent slopes.	About 8 inches of stony fine sandy loam over stony sandy clay loam, underlain by sandstone at depth of 1.5 to 2.5 feet. Well-drained soil on mountain slopes. Seasonally high water table at depth of 15 feet or more.	0 to 8-----	70 to 85----	65 to 80---	25 to 40---
			8 to 24----	75 to 90----	70 to 85---	40 to 50---
			24+--------	----------	----------	----------
Stl	Stendal silt loam.	About 8 inches of silt loam over 3 to 5 feet of silt loam and fine sandy loam, underlain by shale or limestone at depth of 5 to 10 feet. Somewhat poorly drained soil on flood plains. Seasonally high water table at depth of 1 foot.	0 to 8-----	100---------	95 to 100--	85 to 95---
			8 to 50+---	100---------	95 to 100--	70 to 85---
Spl	Stendal-Philo silt loams.	Stendal: About 3 to 5 feet of recent alluvium over silty clay loam or fine sandy loam. Shale or limestone at depth of 5 to 10 feet. Somewhat poorly drained soils on flood plains. Seasonally high water table at depth of 1 to 2 feet.	0 to 14----	100---------	95 to 100--	95 to 100--
			14 to 30---	95 to 100---	90 to 95---	85 to 95---
			30 to 46+--	100---------	95 to 100--	95 to 100--
		Philo: About 3 to 5 feet of recent alluvium over silty clay loam or fine sandy loam. Shale or limestone at depth of 5 to 10 feet. Moderately well drained soils on flood plains. Seasonally high water table.	0 to 52+---	100---------	95 to 100--	95 to 100--

PHYSICAL PROPERTIES SIGNIFICANT IN ENGINEERING--CONTINUED

Classification			Permeability	Available water capacity	Reaction	Shrink-swell potential
Dominant USDA texture	Unified	AASHO	In. per hr.	In. per in. of depth	pH	
Stony fine sandy loam.	SM or SC---	A-2 or A-4--	2.5 to 5.0----	0.12 to 0.18-----	4.5 to 5.0---	Low.
Stony sandy clay loam.	SC---------	A-6---------	2.5 to 5.0----	0.10 to 0.18-----	4.5 to 5.0---	Moderate.
Sandstone----------	----------	----------	----------	----------	----------	
Silt loam----------	ML or CL---	A-4--------	0.8 to 2.5---	0.18 to 0.25-----	4.5 to 5.0---	Moderate.
Fine sandy loam-----	ML---------	A-4--------	0.8 to 2.5---	0.12 to 0.18-----	4.5 to 5.0---	Moderate.
Silt loam----------	ML--------	A-4--------	2.5 to 5.0---	0.18 to 0.25----	4.5 to 5.0--	Low.
Fine sandy clay loam.	ML or CL--	A-4 or A-6-	2.5 to 5.0---	0.10 to 0.18----	4.5 to 5.0--	Moderate.
Silt loam----------	ML--------	A-4--------	2.5 to 5.0---	0.18 to 0.25----	4.5 to 5.0--	Moderate.
Silt loam----------	ML--------	A-4--------	2.5 to 5.0---	0.18 to 0.25----	4.5 to 5.0--	Moderate.

TABLE 12.--BRIEF DESCRIPTIONS OF THE SOILS AND THEIR ESTIMATED

Map symbol	Soil	Description of soil and site	Depth from surface (typical profile)	Percentage passing sieve--		
				No. 4 (4.7 mm.)	No. 10 (2.0 mm.)	No. 200 (0.074 mm.)
			In.			
TwA	Taft silt loam, 0 to 2 percent slopes.	About 6 inches of silt loam over silty clay loam, underlain by limestone or shale at depth of 6 to 8 feet. Fragipan at depth of 18 to 36 inches. Somewhat poorly drained soil on nearly level old terraces. Seasonally high water table at depth of 1 foot (perched).	0 to 6-----	95 to 100---	95 to 100--	85 to 95---
			6 to 38----	95 to 100---	95 to 100--	90 to 100--
			38 to 50+--	95 to 100---	90 to 100--	85 to 95---
TxA	Tupelo silt loam, 0 to 2 percent slopes.	About 6 inches of silt loam over silty clay and clay, underlain by limestone at depth of 3.5 to 5 feet. Somewhat poorly drained old alluvial soils. Seasonally high water table at depth of 1 foot or less.	0 to 7-----	95 to 100---	90 to 95---	70 to 80---
			7 to 20----	95 to 100---	85 to 95---	80 to 90---
TxB2	Tupelo silt loam, 2 to 6 percent slopes, eroded.		20 to 46---	95 to 100---	85 to 95---	85 to 95---
			46+--------	----------	----------	----------
TyA	Tyler fine sandy loam, 0 to 2 percent slopes.	About 0.5 foot of fine sandy loam over 1 foot of silty clay loam. Compact, brittle, and extremely firm silt loam (fragipan) at depth of 15 to 30 inches. Shale at depth of about 5 feet. Somewhat poorly drained soils on terraces. Seasonally high water table at depth of 1 foot to 2 feet.	0 to 6-----	95 to 100---	95 to 100--	60 to 70---
			6 to 18----	95 to 100---	95 to 100--	85 to 95---
			18 to 36---	95 to 100---	95 to 100--	90 to 100--
TyB	Tyler fine sandy loam, 2 to 6 percent slopes.		36 to 46+--	60 to 75----	55 to 65---	50 to 60---

PHYSICAL PROPERTIES SIGNIFICANT IN ENGINEERING--CONTINUED

Classification			Permeability	Available water capacity	Reaction	Shrink-swell potential
Dominant USDA texture	Unified	AASHO	In. per hr.	In. per in. of depth	pH	
Silt loam	ML or CL	A-4	0.8 to 2.5	0.15 to 0.20	4.5 to 5.0	Moderate.
Silty clay loam	CL	A-6	0.2 to 0.8	0.12 to 0.18	4.5 to 5.0	Moderate.
Silty clay	CL	A-7	0.2 to 0.8	0.10 to 0.15	4.5 to 5.0	Moderate.
Silt loam	ML or CL	A-4	0.8 to 0.25	0.18 to 0.25	4.5 to 5.0	Moderate.
Silty clay	MH or CH	A-6	0.05 to 0.2	0.10 to 0.15	5.1 to 5.5	High.
Clay	MH	A-7	0.05 to 0.2	0.08 to 0.15	6.6 to 7.3	High.
Limestone	---	---	---	---	---	
Fine sandy loam	ML or CL	A-4	0.8 to 2.5	0.12 to 0.18	5.1 to 5.5	Moderate.
Silty clay loam	CL	A-6	0.2 to 0.8	0.12 to 0.18	4.5 to 5.0	Moderate.
Silt loam	ML	A-4	0.05 to 0.2	0.07 to 0.12	4.5 to 5.0	Moderate.
Gravelly silt loam	ML	A-4	0.8 to 2.5	0.15 to 0.22	4.5 to 5.0	Moderate.

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TABLE 12.--BRIEF DESCRIPTIONS OF THE SOILS AND THEIR ESTIMATED

Map symbol	Soil	Description of soil and site	Depth from surface (typical profile)	Percentage passing sieve--		
				No. 4 (4.7 mm.)	No. 10 (2.0 mm.)	No. 200 (0.074 mm.)
			In.			
WbB2	Waynesboro fine sandy loam, 2 to 6 percent slopes, eroded.	About 0.5 foot of fine sandy loam over 4 to 10 feet of clay loam and silty clay loam. Shale or limestone at depth of 5 to 15 feet. Well-drained old alluvial soils. Seasonally high water table at depth of more than 15 feet.	0 to 7---- 7 to 28--- 28 to 50+-	90 to 100-- 90 to 100-- 90 to 95---	85 to 95--- 85 to 95--- 85 to 95---	50 to 60--- 60 to 70--- 50 to 65---
WbC2	Waynesboro fine sandy loam, 6 to 10 percent slopes, eroded.					
WbD2	Waynesboro fine sandy loam, 10 to 15 percent slopes, eroded.					
WbE2	Waynesboro fine sandy loam, 15 to 25 percent slopes, eroded.					
WcC3	Waynesboro fine sandy loam, 6 to 10 percent slopes, severely eroded.					
WcD3	Waynesboro fine sandy clay loam, 10 to 15 percent slopes, severely eroded.					
WcE3	Waynesboro fine sandy clay loam, 15 to 25 percent slopes, severely eroded.					
WdA	Whitwell silt loam, 0 to 2 percent slopes.	About 8 inches of silt loam over silty clay loam, underlain by shale or limestone at depth of 8 to 12 feet. Moderately well-drained and somewhat poorly drained soils on low terraces. Seasonally high water table at depth of about 3 feet.	0 to 8---- 8 to 35--- 35 to 46+-	95 to 100-- 95 to 100-- 95 to 100--	95 to 100-- 95 to 100-- 95 to 100--	85 to 95--- 90 to 100-- 85 to 95---
WdB	Whitwell silt loam, 2 to 6 percent slopes.					
WqA	Whitwell silt loam, moderately wet, 0 to 2 percent slopes.					
WqB	Whitwell silt loam, moderately wet, 2 to 6 percent slopes.					
WfA	Wolftever silt loam, concretionary variant, 0 to 2 percent slopes.	About 8 inches of silt loam over 1 foot of silty clay loam, underlain by weakly cemented chert, sand, and concretions at depth of 1.5 to 3 feet. Shale or limestone at depth of 4 to 8 feet. Moderately well drained old alluvial soils on low stream terraces. Seasonally high water table at depth of 8 feet.	0 to 8---- 8 to 18--- 18 to 48+-	95 to 100-- 95 to 100-- 50 to 60---	90 to 100-- 95 to 100-- 35 to 45---	80 to 90--- 85 to 95--- 15 to 25---
WfB	Wolftever silt loam, concretionary variant, 2 to 6 percent slopes.					

PHYSICAL PROPERTIES SIGNIFICANT IN ENGINEERING--CONTINUED

Classification			Permeability	Available water capacity	Reaction	Shrink-swell potential
Dominant USDA texture	Unified	AASHO				
			In. per hr.	In. per in. of depth	pH	
Fine sandy loam-----	ML---------	A-4--------	2.5 to 5.0---	0.12 to 0.18-----	4.5 to 5.0---	Low.
Clay loam----------	CL---------	A-6--------	0.8 to 2.5---	0.15 to 0.20-----	4.5 to 5.0---	Moderate.
Silty clay loam or silty clay.	CL---------	A-7--------	0.8 to 2.5---	0.12 to 0.18-----	4.5 to 5.0---	Moderate.
Silt loam----------	ML---------	A-4--------	0.8 to 2.5---	0.18 to 0.25-----	4.5 to 5.0---	Low.
Silty clay loam-----	CL---------	A-6--------	0.8 to 2.5---	0.12 to 0.18-----	4.5 to 5.0---	Moderate.
Silt loam----------	ML---------	A-4--------	0.8 to 2.5---	0.18 to 0.25-----	4.5 to 5.0---	Moderate.
Silt loam----------	ML---------	A-4--------	0.8 to 2.5---	0.18 to 0.25-----	5.1 to 5.5---	Low.
Silty clay loam-----	CL---------	A-6--------	0.8 to 2.5---	0.12 to 0.18-----	5.6 to 6.0---	Moderate.
Gravel, sand, and concretions.	GM---------	A-1--------	0.2 to 0.8---	0.03 to 0.07-----	5.1 to 5.5---	Low.

TABLE 13.--ENGINEERING

Soil series and map symbol	Suitability as source of--			Soil features affecting--		
	Topsoil	Road base	Road fill	Highway location	Farm ponds	
					Reservoir area	Embankment
Allen---------- AaB2 AaC2, AaD, AaD2, AaE, AbC3, AbE3, AyF.	Good, except in stony areas.	Poor-------	Good---	Steep slopes common.	Underlain by porous shale and limestone.	Moderate strength and stability.
Atkins---------- Atk.	Fair----	Not suitable.	Fair to poor.	High water table; subject to flooding.	No undesirable features.	Low strength and stability.
Bodine---------- BzE, BzF.	Poor----	Good if crushed.	Fair---	Numerous large boulders; very steep slopes.	Rapid permeability; very steep slopes.	Rapid permeability; boulders.
Captina---------- CBA.	Fair----	Poor-------	Fair---	Seasonally high water table; some seepage.	Rapid permeability above slowly permeable hardpan.	Poor to moderate strength and stability.
Christian---------- CDB, CDC, CDD, CDE, CEB3, CEC3, CED3, CEE3	Good----	Poor-------	Good---	No undesirable features.	Moderately rapid permeability.	Moderately rapid permeability; good strength and stability; good construction methods needed.
Clarksville--------- CHB, CHC2, CHD, CHE, CHE2, CID3.	Poor----	Good-------	Good---	Few large boulders.	Rapid permeability; cavernous bedrock.	Moderately rapid permeability; poorly graded material.
Colbert---------- CME.	Poor----	Poor-------	Poor---	Highly plastic soil material.	Bedrock at depth of 10 to 24 inches, may be cavernous.	Low strength and stability.
Conasauga---------- CRA, CRB, CRB2, CSB, CSB2, CSC2, CSC3, CSD.	Poor----	Poor-------	Poor---	Plastic soil material; numerous rocks.	Underlain by shale and interbedded limestone.	Moderate to low strength and stability.

INTERPRETATIONS

Soil features affecting--Continued				Degree of limitation for use as septic-tank drainage fields
Agricultural drainage	Irrigation	Terraces and diversions	Waterways	
Not needed-------	Steep slopes---------	Not needed; small cultivated areas.	Not needed; small cultivated areas.	AaB2, AaC2, AbC3, slight; AaD, AaD2, moderate; AaE, AbE3, AyF, severe.
High water table; poor outlets.	Low productivity; high water table.	Not needed; level topography.	Not needed; level topography.	Severe.
Rapid permeability; drainage not needed.	Not suitable for cultivation.	Not suitable for cultivation.	Stony; steep--	Severe.
Seasonally high water table; subsurface drainage difficult.	Low water-holding capacity.	Not needed; low level terraces.	Hardpan at depth of 12 inches.	Severe.
Not needed-------	Rapid infiltration; high water-holding capacity.	Soil properties favorable.	Subsoil moderately erodible.	CDB, CDC, CEB3, CEC3, slight, CDD, CED3, moderate; CDE, CEE3, severe.
Moderately rapid permeability; drainage not needed.	Low water-holding capacity.	Soil properties favorable.	Low water-holding capacity.	CHB, CHC2, slight; CHD, CID3, moderate; CHE, CHE2, severe.
Slowly permeable; subsurface drainage difficult.	Very low water-holding capacity.	Plastic; difficult to move; rock outcrops.	Vegetation difficult to establish.	Severe.
Surface drainage needed in level areas only.	Low water-holding capacity.	Shallow; plastic subsoil; few rocks.	Vegetation difficult to establish.	Severe.

TABLE 13.--ENGINEERING

Soil series and map symbol	Suitability as source of--			Soil features affecting--		
	Topsoil	Road base	Road fill	Highway location	Farm ponds	
					Reservoir area	Embankment
Cumberland---------- CUB, CUC2, CVB3, CVC3.	Fair-----	Poor-------	Poor----	Unstable slopes; frost-susceptible material.	Excessive seepage.	Low strength and stability.
Dewey---------- DdB2, DdC2, DeC3, DeD3, DeE3.	Fair-----	Poor-------	Fair----	Unstable slopes; frost-susceptible material.	Excessive seepage.	Low strength and stability.
Ennis---------- Ens.	Fair-----	Poor-------	Fair----	Seasonally high water table; some seepage.	Moderate permeability.	Moderate strength and stability.
Etowah---------- EdA, EdB, EdC.	Good-----	Poor-------	Poor----	Unstable slopes; frost-susceptible material.	Excessive seepage.	Low strength and stability.
Farragut---------- FfB2, FgB3, FgC3, FgD3.	Poor-----	Poor-------	Poor----	Unstable slopes; frost-susceptible material.	Moderate permeability.	Low strength and stability.
Fullerton---------- FmB, FmC, FmD, FmE, FmF, FnC3, FnD3, FnE3.	Poor to fair.	Poor-------	Poor to fair.	Unstable slopes----	Excessive seepage because of moderately rapid permeability.	Moderately rapid permeability; poorly graded material.
Gilpin-Dekalb[1/]------ GDF.	Poor-----	Poor-------	Fair----	Steep slopes; stony.	Steep slopes----	Moderate strength and stability; stony.
Gullied land--------- Gul.	Poor-----	Poor-------	Poor----	Frost-susceptible material.	Excessive silting; unsuitable.	Limited soil material.
Guthrie---------- Gut.	Poor-----	Poor-------	Poor----	Seasonally high water table; plastic soil material.	Very plastic soil material; very slowly permeable.	Low strength and stability.

See footnotes at end of table.

INTERPRETATIONS--CONTINUED

Soil features affecting--Continued				Degree of limitation for use as septic-tank drainage fields
Agricultural drainage	Irrigation	Terraces and diversions	Waterways	
Good natural drainage.	Soil properties favorable.	Soil properties favorable.	Erodible; vegetation easy to establish.	Slight.
Good natural drainage.	Soil properties favorable.	Soil properties favorable.	Erodible; vegetation easy to establish.	DdB2, DdC2, DeC3, slight; DeD3, moderate; DeE3, severe.
Good natural drainage.	Soil properties favorable.	Narrow areas in depressions.	Good natural waterways.	Severe.
Good natural drainage.	Soil properties favorable.	Soil properties favorable.	Erodible; vegetation easy to establish.	Slight.
Good natural drainage.	Fine-textured surface layer; moderate infiltration.	Soil properties favorable.	Highly erodible; cracks when dry.	FfB2, FgB3, FgC3, moderate; FgD3, severe.
Good natural drainage.	Soil properties favorable.	Soil properties favorable.	Moderately erodible; vegetation somewhat difficult to establish.	FmB, FmC, FnC3, slight; FmD, FnD3, moderate; FmE, FmF, FnE3, severe.
Good natural drainage.	Low water-holding capacity.	Stony; steep---------	Stony; steep--	Severe.
Good natural drainage.	Severe erosion-------	Severe erosion-------	Vegetation difficult to establish.	Severe.
Very slow permeability; subsurface drainage difficult.	Poor agricultural soil.	Not needed; level and nearly level topography.	Plastic clay; difficult to shape.	Severe.

TABLE 13.--ENGINEERING

Soil series and map symbol	Suitability as source of--			Soil features affecting--		
	Topsoil	Road base	Road fill	Highway location	Farm ponds	
					Reservoir area	Embankment
Hartsells---------- HGB, HGC.	Good-----	Fair--------	Good----	Sandstone at depth of 5 to 8 feet.	Moderately rapid permeability.	Good strength and stability.
Huntington---------- HXA.	Fair-----	Fair to poor.	Poor----	Frost-susceptible material.	Moderate permeability; excessive seepage.	Low strength and stability.
Jefferson---------- JaC, JaD, JaE.	Good-----	Fair to poor.	Good----	Danger of slides on slopes of 15 to 25 percent.	Moderate seepage.	Adequate strength and stability.
Klinesville--------- KjD, KjE, KjF.	Poor-----	Poor--------	Fair----	Soil properties favorable.	Slow seepage---	Moderate strength and stability.
Landisburg---------- LIA, LIB, LIC.	Poor-----	Fair--------	Good----	Seasonally high water table; seepage.	Excessive seepage.	Poorly graded material.
Leadvale---------- LJA, LJB.	Poor-----	Poor--------	Poor----	Seasonally high water table.	No undesirable features.	Low strength and stability.
Lehew-Dekalb-------- [2/] LbB, LbC, LbD, LLD3.	Fair-----	Poor--------	Poor----	Erodible slopes; otherwise favorable.	Moderate permeability; excessive seepage.	Moderate strength and stability.

See footnotes at end of table.

INTERPRETATIONS--CONTINUED

Soil features affecting--Continued				Degree of limitation for use as septic-tank drainage fields
Agricultural drainage	Irrigation	Terraces and diversions	Waterways	
Good natural drainage.	Moderately rapid infiltration; moderate water-holding capacity.	Soil properties favorable.	Erodible; low fertility; vegetation easy to establish.	Slight.
Good natural drainage.	Moderate infiltration; high water-holding capacity.	Terraces not needed; level and nearly level topography.	Highly erodible; thick vegetation needed.	Severe.
Good natural drainage.	Moderately rapid infiltration; high water-holding capacity.	Soil properties favorable.	Erodible; moderate fertility.	JaC, slight; JaD, moderate; JaE, severe.
Drainage not needed.	Low water-holding capacity.	Strong slopes; shallow.	Low water-holding capacity; vegetation difficult to establish.	Severe.
Surface drainage needed; subsurface drainage difficult.	Low water-holding capacity.	Soil properties favorable on slopes of more than 2 percent.	Low fertility; vegetation difficult to establish.	Severe.
Seasonally high water table; fragipan.	Fragipan at depth of 2 feet; moderate water-holding capacity.	Soil properties favorable on slopes of 2 to 6 percent.	Soil properties favorable.	Severe.
Good natural drainage.	Low water-holding capacity.	Soil properties favorable, except on slopes of more than 10 percent.	High erodibility; low water-holding capacity; low fertility.	LbB, LbC, moderate; LbD, LLD3, severe.

TABLE 13.--ENGINEERING

Soil series and map symbol	Suitability as source of--			Soil features affecting--		
	Topsoil	Road base	Road fill	Highway location	Farm ponds: Reservoir area	Farm ponds: Embankment
Lehew-Ramsey[3/]--------- LaE, LaF, LhE3.	Poor-----	Fair---------	Fair----	Erodible slopes; otherwise favorable.	Soft, broken sandstone and shale, at depth of 2 to 4 feet.	Gravelly; rapid permeability.
Local alluvial land, moderately wet. Led.	Fair-----	Poor---------	Poor----	High water table; subject to flooding.	Moderate permeability.	Moderate strength and stability.
Locust---------- LKB.	Good-----	Fair---------	Fair----	Seasonally high water table.	Moderate permeability.	Moderate to adequate strength and stability.
Melvin---------- Mel.	Poor-----	Poor---------	Poor----	High water table; frequent flooding.	Moderately slow permeability.	Low strength and stability.
Monongahela--------- MaB, MaC, MbB.	Fair-----	Fair---------	Good----	Seasonally high water table.	Moderately slow permeability.	Moderate strength and stability.
Montevallo (slaty)-- MfF, MfG.	Poor-----	Fair---------	Fair----	Very steep slopes; shallow to bedrock.	Very steep slopes; excessive seepage.	Slaty---------
Montevallo (shaly)-- MdB, MdC, McC3, McD, McD3, McE, McE3, and McF [4/].	Poor-----	Poor---------	Fair----	No undesirable features.	Slow seepage---	Moderate strength and stability.
Muse---------- MeB, MeB2, MeC2.	Fair-----	Poor---------	Fair----	No undesirable features.	Moderate permeability.	Moderate strength and stability.

See footnotes at end of table.

INTERPRETATIONS--CONTINUED

Soil features affecting--Continued				Degree of limitation for use as septic-tank drainage fields
Agricultural drainage	Irrigation	Terraces and diversions	Waterways	
Not needed--------	Steep slopes; low water-holding capacity.	Steep slopes; gravelly soil material.	Steep slopes; not suited.	Severe.
Moderate permeability; seasonally high water table.	Moderately rapid infiltration; high water-holding capacity.	Not needed----------	Topography not favorable.	Severe.
Moderate to slow permeability; fragipan at depth of 16 to 24 inches.	Moderate infiltration; low water-holding capacity.	Soil properties favorable.	Moderately low fertility; vegetation and shaping needed.	Severe.
Moderately slow permeability; poor outlets.	Moderate infiltration; moderate water-holding capacity.	Not needed----------	Not needed----	Severe.
Good natural drainage.	Moderate infiltration; low water-holding capacity.	Soil properties favorable.	Low natural fertility.	Severe.
Drainage not needed.	Steep slopes; poor agricultural soil.	Steep slopes; shallow.	Steep slopes; shallow.	Severe.
Good natural drainage.	Low water-holding capacity.	Not suitable because of insufficient soil material.	Low water-holding capacity; vegetation difficult to establish.	Severe.
Good natural drainage.	Moderate infiltration; moderate water-holding capacity.	Soil properties favorable.	Erodible; thick vegetation needed.	Slight.

TABLE 13.--ENGINEERING

Soil series and map symbol	Suitability as source of--			Soil features affecting--		
	Topsoil	Road base	Road fill	Highway location	Farm ponds	
					Reservoir area	Embankment
Nolichucky---------- NbB, NbC, NbD2.	Good-----	Fair--------	Good----	No undesirable features.	Moderate permeability.	Good strength and stability.
Pope fine sandy loam. Pop.	Good-----	Fair--------	Fair----	Seasonally high water table; occasional flooding.	Excessive seepage.	Moderate permeability; good compaction.
Pope shaly silt loam. Pos.	Fair-----	Poor--------	Fair----	Seasonally high water table.	Moderate permeability.	Shaly; poor strength and stability.
Purdy---------- Pur.	Poor-----	Poor--------	Poor----	High water table; high shrink-swell potential.	Moderately slow permeability.	Low strength and stability.
Rarden---------- RmB, RmB2, RmC2, RmD2, RnC3, RnD3, RnE3.	Fair-----	Poor--------	Fair----	Plastic soil material.	Moderately slow permeability; low seepage.	Moderate strength and stability.
Robertsville-------- Rob.	Poor-----	Poor--------	Fair----	High water table--	Slow permeability; low seepage.	Low strength and stability.
Sandy and gravelly land. Spg.	Poor-----	Good--------	Fair----	Seasonally high water table; seepage.	Rapid permeability; gravel layers and pockets.	Gravelly---------
Sequatchie---------- SaA, SaB, SaB2.	Good-----	Fair--------	Good----	No undesirable features.	Moderate permeability; excessive seepage.	Moderate strength and stability.

See footnotes at end of table.

INTERPRETATIONS--CONTINUED

Soil features affecting--Continued				Degree of limitation for use as septic-tank drainage fields
Agricultural drainage	Irrigation	Terraces and diversions	Waterways	
Good natural drainage.	Moderate infiltration; moderate water-holding capacity.	Soil properties favorable.	Soil properties favorable.	NbB, NbC, slight; NbD2, moderate.
Good natural drainage.	Moderately rapid permeability; high water-holding capacity.	Not needed----------	Topography not favorable.	Severe.
Good natural drainage.	Moderately rapid infiltration; high water-holding capacity.	Not needed----------	Good natural waterways.	Severe.
Moderately slow permeability; subsurface drainage poor.	Poor agricultural soil.	Not needed----------	Topography not favorable.	Severe.
Good natural drainage.	Moderate infiltration; low water-holding capacity.	Soil properties favorable.	Moderately low fertility; low water-holding capacity.	Severe.
Slow permeability; poor outlets.	Poor agricultural soil; clayey subsoil.	Not needed----------	Togography not favorable (level).	Severe.
Rapid permeability to fragipan.	Very rapid infiltration; low water-holding capacity.	Not needed; level fans.	Not needed; broad level areas.	Severe.
Good natural drainage.	Moderately rapid infiltration; high water-holding capacity.	Soil properties favorable.	Topography not favorable.	Slight.

TABLE 13.--ENGINEERING

Soil series and map symbol	Suitability as source of--			Soil features affecting--		
					Farm ponds	
	Topsoil	Road base	Road fill	Highway location	Reservoir area	Embankment
Sequoia---------- SbB2, SbC2, ScB3, ScC3, ScD3.	Fair-----	Poor--------	Fair----	Plastic soil material.	Moderately slow permeability; low seepage.	Moderate strength and stability.
Steekee---------- SdF.	Poor-----	Fair--------	Fair-----	Steep slopes; few boulders; bedrock at depth of 16 to 30 inches.	Moderately rapid permeability; steep slopes.	Stony----------
Stendal---------- St1.	Fair-----	Poor--------	Fair-----	High water table; occasional flooding.	Excessive seepage.	Moderate strength and stability.
Stendal-Philo[5/]------- Sp1.	Fair-----	Poor--------	Fair-----	High water table; occasional flooding.	Excessive seepage.	Moderate strength and stability.
Taft---------- TwA.	Fair-----	Poor-------	Fair-----	Seasonally high water table.	Fragipan should not be disturbed.	Low strength and stability.
Tupelo---------- TxA, TxB2.	Fair-----	Poor--------	Poor-----	Plastic soil material; seasonally high water table.	Slow permeability; low seepage.	High shrink-swell potential.
Tyler---------- TyA, TyB.	Fair-----	Poor--------	Fair----	Seasonally high water table.	Moderately slow permeability; fragipan should not be disturbed.	Moderate strength and stability.
Waynesboro---------- WbB2, WbC2, WbD2, WbE2, WcC3, WcD3, WcE3.	Good-----	Poor--------	Fair----	No undesirable features.	Moderate permeability, but soil can be compacted.	Moderate strength and stability.

See footnotes at end of table.

INTERPRETATIONS--CONTINUED

Soil features affecting--Continued				Degree of limitation for use as septic-tank drainage fields
Agricultural drainage	Irrigation	Terraces and diversions	Waterways	
Good natural drainage.	Moderate infiltration; moderate water-holding capacity.	Soil properties favorable.	Needs shaping; vegetation difficult to establish.	Severe.
Good natural drainage.	Poor agricultural soil.	Steep slopes; stony.	Topography not favorable.	Severe.
High water table; moderate permeability.	Moderate infiltration; high water-holding capacity.	Not needed-------	Topography not favorable.	Severe.
High water table; moderate permeability.	Moderate infiltration; high water-holding capacity.	Not needed-------	Topography not favorable.	Severe.
Seasonally high water table; fragipan.	Low water-holding capacity.	Not needed-------	Topography not favorable.	Severe.
Slow permeability; subsurface drainage difficult; clayey subsoil.	Very low water-holding capacity.	Not needed; low terraces.	Vegetation difficult to establish.	Severe.
Moderately slow permeability to fragipan.	Low water-holding capacity.	Not needed------	Topography not favorable.	Severe.
Good natural drainage.	Moderate infiltration; moderate water-holding capacity.	Soil properties favorable.	Shaping needed; vegetation not difficult to establish.	WbB2, WbC2, WcC3, slight; WbD2, WbE2, WcD3, WcE3, severe:

TABLE 13.--ENGINEERING

Soil series and map symbol	Suitability as source of--			Soil features affecting--		
	Topsoil	Road base	Road fill	Highway location	Farm ponds	
					Reservoir area	Embankment
Whitwell---------- WdA, WdB.	Fair-----	Fair--------	Fair----	Seasonally high water table; occasional flooding.	Excessive seepage.	Moderate strength and stability.
Whitwell (moderately wet). WqA, WqB.	Fair-----	Fair--------	Fair----	Seasonally high water table.	Moderately slow permeability.	Moderate strength and stability.
Wolftever[6/]---------- WfA, WfB.	Fair-----	Fair--------	Fair----	No undesirable features.	Excessive seepage.	Moderate strength and stability.

1/ The Gilpin and Dekalb soils have similar limitations for engineering.

2/ Only the Lehew soils, which are dominant, are rated.

3/ Only the Ramsey soils are rated here. The Lehew soils are rated under the Lehew series.

Parent material

Parent material is the unconsolidated mass from which a soil develops. It is largely responsible for the chemical and mineralogical composition of a soil. Most soils in Gordon County formed in place from residual material; that is, material weathered from the underlying rock. Table 14 lists the kinds of rock from which the parent material of each soil series was derived. According to the Geologic Map of Georgia (*3*), the rocks of Gordon County are chiefly the following: shale of the Conasauga, Rome, and Floyd formations (fig. 13); limestone of the Knox dolomite and Fort Payne formations; sandstone of the Red Mountain formation; and slate of the Great Smoky formation.

The soils along the larger streams in the county formed in materials transported and deposited by streams. Much of this alluvium originated from rocks of nearby uplands, but some was derived from metamorphic rocks of the mountains to the east. The soils on old high terraces and benches have been in place long enough to have developed distinct horizons, whereas those on first bottoms show little profile development and are still receiving alluvial deposits. Along drainageways throughout the uplands, there are also some narrow strips of local alluvium that have been little influenced by soil-forming processes.

Climate

Climate, as a genetic factor, affects the soil physically, chemically, and biologically, primarily through the influence of precipitation and temperature. Water dissolves minerals, supports biological activity, and transports mineral and organic residues through the soil profile. The amount of water that filters through the soil at a given point depends mainly on rainfall, relative humidity, length of the frost-free period, relief, and soil permeability. Temperature influences the kinds and growth of organisms and the speed of physical and chemical reactions in the soil. Microclimatic variations cause certain characteristics of the soils to differ from those of soils developed under the prevailing macroclimate.

In Gordon County, the soils are moist and subject to leaching much of the time from December 1 through August 31. They are moderately dry to dry much of the time from September 1 through November 30. They are frozen for periods of only 1 to 4 days duration, and consequently freezing and thawing have little effect on weathering and soil-forming processes. The average temperature is above 70° F. from about June 1 through September 30. Table 1, on page 2, gives the average temperature and distribution of rainfall, by month.

Living organisms

The kinds and numbers of plants and animals that live on and in the soil depend largely on the climate but are affected to varying degrees by parent material, relief, and the age of the soil.

Micro-organisms are indispensable in soil development. Bacteria, fungi, and other micro-organisms aid in

INTERPRETATIONS--CONTINUED

Soil features affecting--Continued				Degree of limitation for use as septic-tank drainage fields
Agricultural drainage	Irrigation	Terraces and diversions	Waterways	
Subsurface drainage satisfactory if outlets are adequate.	Moderate infiltration; moderate water-holding capacity.	Not needed---------	Topography not favorable.	Severe.
Moderately slow permeability.	Moderate infiltration; low water-holding capacity.	Not needed---------	Topography not favorable.	Severe.
Not needed------	Low water-holding capacity.	Soil properties favorable.	Topography not favorable.	Severe.

4/ The symbols McC3, McD, McD3, McE, McE3, and McF represent the Montevallo-Klinesville complexes. Only the Montevallo soils are rated here. The Klinesville soils are rated under the Klinesville series.

5/ The Philo soil is somewhat poorly drained, the Stendal soil is moderately well drained; otherwise these soils have similar limitations for engineering.

6/ On low terraces; moderately well drained; concretionary zone in lower part of subsoil.

weathering rock and in decomposing organic matter. The larger plants serve to alter the soil microclimate, to furnish organic matter, and to transfer elements from the subsoil to the surface layer.

Not much is known of the fungi and micro-organisms in the soils of this county except that they are confined largely to the uppermost few inches. The activity of earthworms and other small invertebrates is greatest in the A1 horizon, where they carry on a slow but continual cycle of soil mixing. Mixing of soil materials by rodents does not appear to have been of much consequence in Gordon County.

Except on bottom lands, the native vegetation consisted chiefly of oak, hickory, loblolly pine, and shortleaf pine. On the bottom lands, the trees were chiefly yellow-poplar, sweetgum, cottonwood, ash, oak, and sycamore. On the poorly drained areas of bottom lands, they were chiefly willow, birch, blackgum, beech, and water-tolerant oak.

Topography

Topography depends largely on the underlying bedrock, on the geologic history of the area, and on dissection by streams. It influences soil formation through its effect on drainage, erosion, temperature, and plant cover, but its influence is modified by the other four factors of soil formation.

The slope range in Gordon County is from 0 to 85 percent. Where the slope is less than 15 percent, the soils generally are deeper and have more distinct horizons. For example, the Christian, Clarksville, Waynesboro, and Dewey soils that have slopes of less than 15 percent have thick, well-defined profiles. Where the slope is between 15 and 85 percent, the soil material is removed by geologic erosion almost as fast as it forms. As a result, many of the soils that have steeper slopes, such as the Montevallo and Klinesville, have thin, weakly defined horizons. Except along intermittent streams on the uplands, most of the alluvial soils in the county are level or nearly level.

Time

The length of time required for the development of a mature soil depends largely on the other factors of soil formation. A mature soil has easily recognized zones of eluviation (A horizon) and illuviation (B horizon). Less time generally is required for a soil to develop in humid, warm regions where vegetation is luxuriant than in dry or cold regions where vegetation is scant. Also, less time is required if the parent material is coarse textured than if it is fine textured, other factors being equal.

Slope can alter the effect of time. For example, on nearly level uplands and on old stream terraces, where geologic erosion generally is slight, the soils have developed to maturity and have well-defined horizons. On stronger slopes, where geologic erosion is more severe, the soil material is removed so rapidly that the solum is kept shallow and there is little soil development. On first bottoms and in other areas of local alluvium, the soil

Figure 13.—Shale of the Rome geological formation.

material has been in place too short a time to allow distinct horizons to form.

Morphology and Classification

The soil classification system used in the United States consists of six categories. Beginning with the most inclusive, these categories are the order, the suborder, the great soil group, the family, the series, and the type.

There are three orders—zonal, intrazonal, and azonal—and thousands of types. The suborder and family categories have never been fully developed and thus have been little used. Attention has been directed largely to the great soil groups, series, and types.

The zonal order consists of soils that have evident, genetically related horizons that reflect the predominant influence of climate and living organisms. In Gordon County, the zonal order is represented by the Red-Yellow Podzolic, Reddish-Brown Lateritic, Gray-Brown Podzolic, and Sol Brun Acide great soil groups.

The intrazonal order includes soils that have more or less evident, genetically related horizons that reflect the dominant influence of a local factor of topography or parent material over the effects of climate and living organisms. In Gordon County, the intrazonal order is represented by the Planosol and the Low-Humic Gley great soil groups.

The azonal order consists of soils that lack distinct, genetically related horizons, commonly because of youth, resistance of parent material to soil-forming processes, or steep topography. In Gordon County, this order is represented by the Alluvial, Regosol, and Lithosol great soil groups.

Each great soil group represented in the county is discussed in the following paragraphs. The discussion includes a detailed description of a profile of one representative soil of each correlated series in the county.

Table 14 lists the soil series by great soil groups and gives some characteristics of each series.

Red-Yellow Podzolic soils

The Red-Yellow Podzolic great soil group is in the zonal order. It consists of well-developed, well-drained, acid soils that have a thin organic O horizon and an organic-mineral A1 horizon. The A1 horizon is underlain by a light-colored, bleached A2 horizon that overlies a red, yellowish-red, or yellowish-brown B horizon that contains an accumulation of clay (*8*). The parent material is more or less siliceous. Coarse, reticulate streaks or mottles of red, brown, and yellow are characteristic of the deep horizons where the parent material is thick (*8*). Kaolinite is the dominant clay mineral. The cation-exchange capacity is low, and the percentage of base saturation (commonly 20 to 35 percent) is low. The B horizons have weak to moderate, subangular blocky structure and colors of 3 to 8 chroma.

The soils in Gordon County that fit the central concept of the Red-Yellow Podzolic great soil group originally had a dark-colored, thin A1 horizon and a well-defined, bleached A2 horizon. Plowing and erosion have disturbed these horizons, and now the surface layer consists of a mixture of material from the original A1 and A2 horizons. In eroded areas the surface layer is predominantly a mixture of the original A2 horizon and the upper part of the former B horizon, and in severely eroded areas, it is predominantly material from the B horizon. In areas that are not severely eroded, the surface layer is strongly to very strongly acid fine sandy loam, silt loam, or cherty silt loam. The B2 horizon generally contains from 1.3 to 4 times as much clay as the A horizon, and the clay films on ped surfaces range from a few to many.

Soils of the Allen, Christian, Fullerton, Muse, Nolichucky, and Sequoia series are examples of Red-Yellow Podzolic soils that have a distinct A2 horizon and a yellowish-red (5YR 4/6), red (2.5YR 4/6), or dark-red (2.5YR 3/6) B2 horizon. These soils have moderate, fine to medium, subangular blocky structure and, in most places, have some clay films on the peds. The Allen, Christian, and Nolichucky soils have more sand throughout the profile than the Fullerton, Muse, and Sequoia

soils. The Fullerton soils contain many pieces of chert. The Sequoia soils have a yellowish-red (5YR 4/6) silty clay B2 horizon, and the Muse soils range to strong brown (7.5YR 5/6) in the B2 horizon.

The Clarksville, Colbert, Conasauga, Hartsells, and Jefferson soils are examples of Red-Yellow Podzolic soils that have a predominantly yellowish-brown (10YR 5/6) B2 horizon. They have weak to moderate, fine to medium, subangular blocky structure. The Hartsells and Jefferson soils have more sand throughout the profile than the Clarksville, Colbert, and Conasauga soils. There are many pieces of chert throughout the Clarksville soils. The B2 horizon of the Colbert and Conasauga soils is plastic clay or extremely firm silty clay.

The Dewey, Etowah, Farragut, and Waynesboro soils have a red (2.5YR 4/6) or dark-red (2.5YR 3/6) to yellowish-red (5YR 4/8) B2 horizon, but they do not have the distinct A2 horizon typical of the Red-Yellow Podzolic soils. In the Dewey and Farragut soils the B2 horizon is very firm silty clay, in the Waynesboro soils it is firm clay loam, and in the Etowah soils it is firm silty clay loam. These soils have weak to moderate, fine, subangular blocky structure. Clay films occur on some ped surfaces and in wormholes. The B2 horizon of the Rarden soils is red (2.5YR 4/8) to strong-brown (7.5YR 5/6) extremely firm silty clay or clay.

The Gilpin soils have a strong-brown (7.5YR 5/6), firm silty clay loam B2 horizon that grades to soft, weathered shale at a depth of 25 inches. The B2 horizon has moderate, fine, subangular blocky structure. There are a few clay films on the surface of peds and in wormholes.

The B2 horizon of the Wolftever soils, concretionary variant, is strong-brown (7.5YR 5/6), firm silty clay loam, and it has moderate, fine, subangular blocky structure. It is underlain by a layer that contains many concretions.

The Captina, Landisburg, Leadvale, Locust, and Monongahela soils are examples of Red-Yellow Podzolic soils that have a mottled, brittle fragipan at a depth of about 18 to 30 inches. These soils formed in alluvium on terraces, on toe slopes, and along small drainageways. Their B2 horizon has weak to moderate, fine to medium, subangular blocky structure. The Captina soils have a strong-brown (7.5YR 5/6), firm silty clay loam B2 horizon that is faintly mottled. In the Landisburg soils the B2 horizon is brownish-yellow (10YR 6/6), firm silty clay loam; in the Locust soils the B2 horizon is yellowish-brown (10YR 5/6), firm gravelly sandy clay loam; in the Leadvale soils it is yellow (10YR 7/6), firm silty clay loam; and in the Monongahela soils, yellowish-brown (10YR 5/6), firm clay loam.

Because of drainage and near-gleyed colors, the Tupelo soils are examples of Red-Yellow Podzolic soils that are grading toward Low-Humic Gley soils. Their B2 horizon is somewhat poorly drained, pale-olive, firm, mottled silty clay or clay. It has moderate, fine, subangular blocky structure. There are many concretions in the B horizon.

The Sequatchie soils have some properties of Red-Yellow Podzolic soils and some properties of Gray-Brown Podzolic soils. Thus, they are classified as Red-Yellow Podzolic soils grading to Gray-Brown Podzolic soils. They have a strong-brown (7.5YR 5/6), friable, sandy clay loam B2 horizon.

In general, all of the soils in this great soil group have characteristics of the Red-Yellow Podzolic soils, and all have developed under relatively similar vegetation and climate. They vary in degree of maturity but are mature enough to have at least a moderately well-developed zonal profile. The differences in characteristics are mainly the results of marked differences in parent material.

Following is a detailed profile description of a representative soil of each series belonging to the Red-Yellow Podzolic great soil group. These profile descriptions are in alphabetical order.

Allen fine sandy loam, 15 to 25 percent slopes, 2.5 miles west of Sugar Valley, on east side of Horn Mountain.

A1—0 to 3 inches, grayish-brown (10YR 5/2) fine sandy loam; weak, fine, granular structure; very friable when moist; many fine roots; very strongly acid; abrupt, smooth boundary.

A21—3 to 10 inches, yellowish-brown (10YR 5/4) fine sandy loam; weak, fine, granular structure; very friable; very strongly acid; many fine roots; clear, wavy boundary.

A22—10 to 16 inches, yellowish-brown (10YR 5/8) fine sandy loam; weak, fine, granular structure; very friable when moist; many fine roots; very strongly acid; clear, wavy boundary.

B1—16 to 28 inches, yellowish-red (5YR 4/8) sandy clay loam; weak, fine, subangular blocky structure; firm when moist; few, fine and medium roots; very strongly acid; gradual, wavy boundary.

B2t—28 to 50 inches +, dark-red (2.5YR 3/6) sandy clay loam; moderate, fine, subangular blocky structure; firm when moist; few sandstone cobblestones; clay films on some ped surfaces; very strongly acid.

Captina silt loam, 0 to 2 percent slopes, 2 miles east-southeast of Liberty School, 100 yards east of railroad, on dirt road.

Ap—0 to 8 inches, dark grayish-brown to brown (10YR 4/2–4/3) silt loam; weak, very fine, granular structure; friable when moist, slightly sticky when wet; few cherty fragments; very strongly acid; abrupt, smooth boundary.

A2—8 to 12 inches, brown to dark-brown (10YR 4/3) silt loam; weak, fine, granular to platy structure; friable when moist, slightly sticky when wet, few brown to dark-brown (7.5YR 4/4) splotches; strongly acid; abrupt, wavy boundary.

B21—12 to 20 inches, strong-brown (7.5YR 5/6) silty clay loam; moderate, fine to medium, subangular blocky structure; firm; some lighter colors are visible when soil is dry but disappear when soil is wet; about 5 percent black concretions, by volume; very strongly acid; clear, wavy boundary.

B22—20 to 28 inches, strong-brown (7.5YR 5/6) silty clay loam; few, fine, faint, light yellowish-brown (10YR 6/4) mottles; moderate, fine, subangular blocky to platy structure; firm; about 12 percent black concretions, by volume; very strongly acid; abrupt, smooth boundary.

Bx—28 to 48 inches, pale-yellow (2.5Y 7/4) silt loam; common, medium, distinct, yellowish-brown (10YR 5/8) mottles; weak, thin, platy to subangular blocky structure; brittle to slightly hard when dry, firm when moist; 5 percent black concretions; colloidal glazing on some ped surfaces; very strongly acid; gradual, wavy boundary.

C—48 to 54 inches +, light yellowish-brown (2.5Y 6/4) silt loam; common, medium, prominent, brown (7.5YR 4/4) and yellowish-brown (10YR 5/6) mottles; structureless; friable; very strongly acid.

TABLE 14.--CLASSIFICATION AND SIGNIFICANT CHARACTERISTICS OF SOIL SERIES

Order, great soil group, and series	Brief description 1/	Position	Drainage class	Slope range	Parent material	Degree of profile development 2/
				Percent		
ZONAL ORDER Red-Yellow Podzolic group: Central concept-- Allen series---------	Yellowish-brown fine sandy loam over yellowish-red, firm sandy clay loam; weathered shale or cherty limestone at depth of 30 to 80 inches.	Toe slopes and fans.	Well drained.	2 to 60---	Old local alluvium that washed from soils underlain by sandstone, shale, and slate.	Strong.
Christian series------	Dark yellowish-brown fine sandy loam over red and dark-red, firm clay loam; interbedded sandstone and cherty limestone at a depth of 60 to 96 inches.	Upland slopes and ridges.	Well drained.	2 to 25---	Residuum weathered from sandstone and cherty limestone.	Strong.
Clarksville series---	Brown to pale-brown cherty silt loam over yellowish-brown, firm cherty silty clay loam; cherty limestone at depth of 10 to 20 feet.	Upland slopes and ridges.	Well drained.	2 to 25---	Residuum weathered from cherty limestone.	Moderate.
Colbert series-------	Grayish-brown very rocky silt loam over olive-brown, very firm, very plastic clay; limestone at depth of 10 to 24 inches.	Valley floors and upland slopes.	Moderately well drained.	15 to 25--	Residuum weathered from limestone and, in some areas, interbedded calcareous shale.	Moderate.
Conasauga series-----	Light yellowish-brown silt loam over yellowish-brown, mottled, extremely firm silty clay; bedrock at depth of 1 to 5 feet.	Upland slopes and depressions.	Moderately well drained and somewhat poorly drained.	0 to 15---	Residuum weathered from shale and interbedded limestone.	Strong.

Dewey series	Strong-brown silt loam over red and dark-red, very firm silty clay; limestone at depth of 10 to 20 feet.	Upland slopes and ridges.	Well drained.	2 to 25--	Residuum weathered from dolomitic limestone.	Strong.
Etowah series	Dark-brown loam over red, firm silty clay loam; shale at depth of 6 to 10 feet.	Low stream terraces.	Well drained.	0 to 10--	Old mixed general alluvium washed from soils underlain by limestone and some shale.	Moderate.
Farragut series	Dark reddish-brown silt loam over dark-red, very firm silty clay; interbedded shale and limestone at depth of 50 to 84 inches.	Upland slopes and ridges.	Well drained.	2 to 15--	Residuum weathered from interbedded shale and limestone.	Strong.
Fullerton series	Yellowish-brown cherty silt loam over strong-brown, very firm silty clay loam that grades to yellowish-red silty clay; cherty limestone at depth of 15 to 30 feet or more.	Upland slopes and ridges.	Well drained.	2 to 60--	Residuum weathered from cherty limestone.	Strong.
Gilpin series	Light olive-brown to light yellowish-brown stony silt loam over strong-brown silty clay loam; weathered shale and siltstone at depth of 16 to 30 inches.	Upland slopes and ridges.	Well drained to excessively drained.	25 to 60--	Residuum weathered from shale and siltstone.	Moderate.
Hartsells series	Dark grayish-brown fine sandy loam over yellowish-brown, friable sandy clay loam; sandstone at depth of 60 to 84 inches.	Upland slopes and ridges.	Well drained.	2 to 10--	Residuum weathered from sandstone.	Moderate.

See footnotes at end of table.

TABLE 14.--CLASSIFICATION AND SIGNIFICANT CHARACTERISTICS OF SOIL SERIES--Continued

Order, great soil group, and series	Brief description 1/	Position	Drainage class	Slope range	Parent material	Degree of profile development 2/
				Percent		
ZONAL ORDER--Cont.						
Red-Yellow Podzolic group--Cont.						
Central concept--Cont.						
Jefferson series----	Dark grayish-brown gravelly fine sandy loam over yellowish-brown and yellowish-red, firm silty clay loam; weathered shale and limestone at depth of 36 to 84 inches.	Toe slopes and fans along the base of ridges and mountains.	Well drained.	6 to 25--	Old local alluvium that washed from soils underlain by sandstone, shale, and cherty limestone.	Moderate.
Muse series---------	Dark-brown silt loam over yellowish-red, firm silty clay loam; shale or limestone at depth of 4 to 8 feet.	Toe slopes and fans.	Well drained.	2 to 10--	Old local alluvium washed from soils underlain by shale and some limestone.	Strong.
Nolichucky series--	Brown fine sandy loam over yellowish-red, mottled, firm fine sandy clay loam; weathered shale at depth of 4 to 7 feet.	High stream terraces.	Well drained.	2 to 15--	Old mixed general alluvium that washed from soils underlain by sandstone and shale.	Strong.
Rarden series------	Brown silt loam over strong-brown to red, extremely firm and plastic silty clay; shale or limestone at depth of 16 to 36 inches.	Upland slopes and ridges.	Well drained.	2 to 25--	Residuum weathered from shale and some interbedded limestone.	Strong.
Sequoia series-----	Dark yellowish-brown silt loam over yellowish-red, extremely firm silty clay; weathered shale and limestone at depth of 45 to 70 inches.	Upland slopes and ridges.	Well drained.	2 to 15--	Residuum weathered chiefly from shale but in places from interbedded limestone.	Strong.

Waynesboro series---	Dark-brown fine sandy loam over yellowish-red to red clay loam, underlain by dark-red, very firm silty clay loam; shale or limestone at depth of 5 to 15 feet.	High stream terraces.	Well drained.	2 to 25--	Old mixed general alluvium that washed from soils underlain by sandstone, limestone, and shale.	Strong.
Wolftever series (concretionary variant).	Brown silt loam over strong-brown, firm silty clay loam; concretionary zone at depth of 15 to 36 inches; shale or limestone at depth of 4 to 8 feet.	Low stream terraces.	Moderately well drained.	0 to 6---	Old mixed general alluvium that washed from soils underlain by limestone and some shale.	Strong.
With fragipan--						
Captina series------	Dark grayish-brown to brown silt loam over strong-brown, firm silty clay loam; fragipan at depth of 20 to 36 inches.	Stream terraces.	Moderately well drained.	0 to 2---	Old mixed general alluvium that washed from soils underlain by limestone and some shale.	Strong.
Landisburg series---	Dark grayish-brown cherty silt loam over brownish-yellow, firm silty clay loam; fragipan at depth of 15 to 30 inches.	Foot slopes, benches, fans, and drainage-ways.	Moderately well drained. and somewhat poorly drained.	0 to 10--	Local alluvium that washed from soils underlain by cherty limestone.	Strong.
Leadvale series-----	Dark yellowish-brown silt loam over brownish-yellow to yellow, very firm silty clay loam; fragipan at depth of 20 to 40 inches.	Foot slopes and drainage-ways.	Moderately well drained.	0 to 6---	Local alluvium that washed from soils underlain by shale.	Strong.
Locust series-------	Grayish-brown gravelly fine sandy loam over yellowish-brown to brownish-yellow, friable sandy clay loam; fragipan at depth of 16 to 24 inches.	Foot slopes and fans adjacent to Horn and Chestnut Mountains.	Moderately well drained.	2 to 6---	Old local alluvium that washed from soils underlain by shale and sandstone.	Moderate.

See footnotes at end of table.

TABLE 14.--CLASSIFICATION AND SIGNIFICANT CHARACTERISTICS OF SOIL SERIES--Continued

Order, great soil group, and series	Brief description 1/	Position	Drainage class	Slope range	Parent material	Degree of profile development 2/
				Percent		
ZONAL ORDER--Cont.						
Red-Yellow Podzolic group--Cont.						
With fragipan--Cont.						
Monongahela series---	Dark grayish-brown fine sandy loam or gravelly silt loam over yellowish-brown, firm clay loam; fragipan at depth of 20 to 36 inches.	Stream terraces, alluvial fans, and benches.	Moderately well drained.	2 to 10--	Old mixed general alluvium that washed from soils underlain by shale and sandstone.	Strong.
Grading to Low-Humic Gley group--						
Tupelo series--------	Light yellowish-brown silt loam over light yellowish-brown, mottled silty clay that grades to pale-olive clay; extremely firm; limestone at depth of 40 to 60 inches.	Low stream terraces.	Somewhat poorly drained.	0 to 2---	Old general alluvium that washed from soils underlain by limestone and some shale.	Strong.
Grading to Gray-Brown Podzolic group--						
Sequatchie series----	Dark-brown loam over strong-brown, friable fine sandy clay loam; shale or limestone at depth of 5 to 12 feet.	Low stream terraces.	Well drained.	0 to 6---	Old mixed general alluvium that washed from soils underlain by sandstone and shale.	Moderate.
Reddish-Brown Lateritic group:						
Cumberland series----	Dark reddish-brown loam over dark-red, firm silty clay; shale or limestone at depth of 50 to 84 inches.	Stream terraces.	Well drained.	2 to 10--	Old mixed general alluvium that washed from soils underlain by limestone.	Strong.

Gray-Brown Podzolic group:						
Whitwell series------	Dark-brown silt loam over yellowish-brown, mottled, firm silty clay loam.	Stream terraces.	Moderately well drained and somewhat poorly drained.	0 to 6---	Old mixed general alluvium that washed from soils underlain by shale, sandstone, and limestone.	Moderate.
Sol Brun Acide group:						
Dekalb series-------	Brown or light yellowish-brown stony to gravelly fine sandy loam over yellowish-brown stony or gravelly sandy clay loam; weathered sandstone at depth of 12 to 25 inches.	Upland slopes and ridges.	Well drained.	2 to 60--	Residuum weathered from sandstone.	Moderate.
Lehew series--------	Dark grayish-brown gravelly fine sandy loam over reddish-brown or yellowish-red, friable gravelly clay loam; weathered sandstone at depth of 2 to 3 feet.	Upland slopes and ridges.	Well drained.	2 to 60--	Residuum weathered from interbedded sandstone and shale.	Moderate.
INTRAZONAL ORDER						
Planosol group:						
Guthrie series------	Dark grayish-brown, mottled silt loam over dark-gray extremely firm clay; common, fine, prominent yellowish-brown mottles.	Upland depressions and flats.	Poorly drained.	0 to 2---	Residuum weathered from limestone.	Strong.
Purdy series--------	Olive-gray to gray silt loam over gray, mottled, very firm silty clay; shale at depth of 5 to 8 feet.	Low stream terraces.	Poorly drained.	0 to 2---	Old mixed general alluvium that washed from soils underlain by shale and some sandstone.	Strong.
Robertsville series-	Olive-gray, mottled silt loam over olive-gray, mottled, extremely firm cherty silty clay.	Low stream terraces.	Poorly drained.	0 to 2---	Old mixed general alluvium that washed from soils underlain by limestone and to a small extent by shale.	Strong.

See footnotes at end of table.

TABLE 14.--CLASSIFICATION AND SIGNIFICANT CHARACTERISTICS OF SOIL SERIES--Continued

Order, great soil group, and series	Brief description 1/	Position	Drainage class	Slope range	Parent material	Degree of profile development 2/
				Percent		
INTRAZONAL ORDER--Cont.						
Planosol group--Cont.						
Taft----------	Light olive-brown silt loam over olive-yellow, mottled silty clay loam; fragipan at depth of 18 to 36 inches.	Stream terraces.	Somewhat poorly drained.	0 to 2---	Old mixed general alluvium that washed from soils underlain by limestone and to a small extent by shale.	Strong.
Tyler series--------	Light olive-brown fine sandy loam over light olive-brown silty clay loam; fragipan at depth of 15 to 30 inches.	Low stream terraces.	Somewhat poorly drained.	0 to 6---	Old mixed general alluvium that washed from soils underlain by shale and to a small extent by sandstone and limestone.	Strong.
Low-Humic Gley group:						
Atkins series-------	Light olive-gray, mottled silt loam over gray, mottled silt loam.	Flood plains.	Poorly drained.	0 to 2---	Recent general alluvium that washed from soils underlain by shale and sandstone and to a small extent by limestone.	Weak.
Melvin series-------	Olive, mottled silt loam over olive-gray cherty clay loam.	Flood plains.	Poorly drained.	0 to 2---	Recent general alluvium that washed from soils underlain by limestone and to a small extent by shale.	Weak.

AZONAL ORDER						
Alluvial group:						
Central concept--						
Ennis series-------	About 26 inches of light olive-brown silt loam over light yellowish-brown silty clay loam; bedrock at depth of 6 to 10 feet.	Depressions and base of slopes.	Well drained.	0 to 2---	Recent local alluvium that washed from soils underlain by limestone.	Weak.
Huntington series--	Dark-brown silt loam over dark reddish-brown, friable silt loam that grades to silty clay loam at depth of 2 to 3 feet; limestone at depth of 7 to 10 feet.	Depressions, toe slopes, and drainageways.	Well drained.	0 to 4---	Recent local alluvium that washed from soils underlain by limestone.	Weak.
Philo series-------	Dark yellowish-brown and brown silt loam over brown, mottled silt loam.	Flood plains.	Moderately well drained.	0 to 2---	Recent general alluvium that washed from soils underlain by shale and sandstone.	Weak.
Pope series--------	Dark yellowish-brown fine sandy loam over yellowish-brown, friable fine sandy loam.	Flood plains.	Well drained.	0 to 2--	Recent general alluvium that washed from soils underlain by shale and sandstone.	Weak.
Grading to Low-Humic Gley group--						
Stendal series------	Brown silt loam over grayish-brown, mottled, friable silt loam.	Flood plains.	Somewhat poorly drained.	0 to 2---	Recent general alluvium that washed from soils underlain by sandstone and cherty limestone.	Weak.
Regosol group:						
Bodine series-------	Grayish-brown very stony silt loam over very pale brown, friable very cherty light silty clay loam; chert makes up 85 to 95 percent of B horizon, by volume.	Upland slopes and ridges.	Excessively drained.	15 to 60--	Residuum weathered from cherty limestone.	Weak.

See footnotes at end of table.

TABLE 14.--CLASSIFICATION AND SIGNIFICANT CHARACTERISTICS OF SOIL SERIES--Continued

Order, great soil group, and series	Brief description 1/	Position	Drainage class	Slope range	Parent material	Degree of profile development 2/
				Percent		
AZONAL ORDER--Cont.						
Lithosol group:						
Central concept--						
Klinesville series--	Dark reddish-gray shaly silt loam over reddish-brown shaly silty clay loam; shale at depth of 10 to 20 inches.	Upland slopes and ridges.	Well drained.	6 to 60--	Residuum weathered from red shale.	Weak.
Montevallo series--	Brown shaly silt loam over yellowish-brown shaly silty clay loam; weathered shale at depth of 8 to 20 inches.	Upland slopes and ridges.	Well drained.	2 to 85--	Residuum weathered from shale or slate.	Weak.
Ramsey series------	Brown gravelly fine sandy loam over yellowish-brown, friable gravelly loam; slightly weathered sandstone at depth of 8 to 20 inches.	Upland slopes and ridges.	Well drained.	15 to 60--	Residuum weathered from sandstone and some interbedded shale.	Weak.
Grading to Red-Yellow Podzolic group--						
Steekee series-------	Dark reddish-brown stony fine sandy loam over dark reddish-brown stony sandy clay loam; sandstone at depth of 16 to 30 inches.	Upland slopes and ridges.	Well drained.	25 to 60--	Residuum weathered from weak-red sandstone.	Weak.

1/ The profiles described are of soils not greatly affected by accelerated erosion.

2/ The degree of profile development is measured by the number of important genetic horizons and the degree of contrast between them.

Christian fine sandy loam, 2 to 6 percent slopes, 1.75 miles west of Dews Lake.

Ap—0 to 6 inches, dark yellowish-brown (10YR 4/4) fine sandy loam; weak, fine, granular structure; very friable; many fine roots; few sandstone fragments; very strongly acid; clear, smooth boundary.

A3—6 to 11 inches, yellowish-red (5YR 4/6) loam; weak, fine, granular structure; friable; many fine roots; a little fine sandstone gravel; very strongly acid; clear, wavy boundary.

B1—11 to 18 inches, yellowish-red (5YR 4/6) sandy clay loam; weak, fine, subangular blocky structure; firm; few fine roots; a little fine sandstone gravel; very strongly acid; clear, wavy boundary.

B21t—18 to 30 inches, red (2.5YR 4/6) clay loam; moderate, fine, subangular blocky structure; firm; few clay films on ped surfaces; few fine roots in upper part; a little fine sandstone gravel; very strongly acid; gradual, wavy boundary.

B22t—30 to 56 inches, dark-red (2.5YR 3/6) clay loam; few, fine, distinct, strong-brown (7.5YR 5/6) mottles; moderate, medium, subangular blocky structure; firm; common clay films on peds and in root channels; a little fine sandstone gravel; very strongly acid; gradual, wavy boundary.

B23t—56 to 64 inches, dark-red (2.5YR 3/6) sandy clay loam; few, fine, distinct, strong-brown (7.5YR 5/8) mottles; moderate, medium, subangular blocky structure; firm; many clay films on peds and in root channels; a little fine sandstone gravel and chert; very strongly acid; clear, wavy boundary.

B3—64 to 75 inches +, dark-red (2.5YR 3/6) clay loam; many, fine, distinct, strong-brown (7.5YR 5/8) mottles; weak, fine, subangular blocky structure; firm; much sandstone gravel and many chert fragments; very strongly acid.

Clarksville cherty silt loam, 2 to 6 percent slopes, 0.75 mile east of New Echota Methodist Church, on State Highway No. 156.

Ap—0 to 6 inches, brown (10YR 5/3) cherty silt loam; weak, very fine, granular structure; very friable; numerous fine roots; 20 percent chert, by volume; very strongly acid; abrupt, smooth boundary.

A2—6 to 10 inches, pale-brown (10YR 6/3) cherty silt loam; weak, very fine, granular structure; very friable; many fine roots; 15 percent chert, by volume; very strongly acid; abrupt, smooth boundary.

A3—10 to 15 inches, yellowish-brown (10YR 5/4) and pale-brown (10YR 6/3) cherty silt loam; weak, fine, subangular blocky structure; 15 percent chert, by volume; extremely acid; clear, irregular boundary.

B21t—15 to 29 inches, yellowish-brown (10YR 5/8) cherty silty clay loam; many, fine, faint, pale-brown (10YR 6/3) splotches; weak, fine, subangular blocky structure; firm; few thin clay films on some peds and in root channels; few roots; 25 percent chert fragments, by volume; extremely acid; gradual, wavy boundary.

B22t—29 to 40 inches, yellowish-brown (10YR 5/8) cherty silty clay loam; many, fine, prominent splotches of pale brown (10YR 6/3) and yellowish-red (5YR 5/6); weak, fine, subangular blocky structure; firm; few thin patchy clay films on peds; 35 percent chert, by volume; extremely acid; gradual, wavy boundary.

B3—40 to 60 inches +, yellowish-brown (10YR 5/8), pale-brown (10YR 6/3), and yellowish-red (5YR 5/6) very cherty silt loam to silty clay loam; structureless; friable; 70 percent chert, by volume; extremely acid.

Colbert very rocky silt loam, 15 to 25 percent slopes, 1.75 miles north-northeast of Crane Eater Church.

Ap—0 to 4 inches, grayish-brown (2.5Y 5/2) very rocky silt loam; weak, fine, granular structure; friable; many fine roots; very strongly acid; clear, smooth boundary.

B1t—4 to 7 inches, yellowish-brown (10YR 5/6) silty clay; moderate, medium, subangular blocky structure; firm; few small roots; slightly acid; clear, wavy boundary.

B2t—7 to 15 inches, olive-brown (2.5Y 4/4) clay; strong, fine, blocky structure; very firm; very plastic; clay films on most ped surfaces; mildly alkaline; clear, wavy boundary.

R—15 inches +, limestone rock.

Conasauga silt loam, 2 to 6 percent slopes, 1.5 miles west of Sugar Valley.

A1—0 to 2 inches, grayish-brown (2.5Y 5/2) silt loam; weak, fine, granular structure; very friable; common fine roots; very strongly acid; abrupt, smooth boundary.

A2—2 to 6 inches, light yellowish-brown (2.5Y 6/4) silt loam; weak, fine, granular structure; very friable; common fine roots; very strongly acid; clear, wavy boundary.

B1—6 to 10 inches, brownish-yellow (10YR 6/8) light silty clay loam; weak, fine, subangular blocky structure; firm; common fine roots; very strongly acid; clear, wavy boundary.

B21t—10 to 21 inches, yellowish-brown (10YR 5/8) silty clay; few, fine, distinct, grayish-brown (2.5Y 5/2) mottles; moderate, medium, subangular blocky structure; extremely firm; clay films on some ped faces; slightly plastic; few roots in upper part; very strongly acid; gradual, wavy boundary.

B22t—21 to 26 inches, yellowish-brown (10YR 5/8) silty clay; few, fine, distinct, light yellowish-brown (2.5Y 6/4) mottles; moderate, fine, subangular blocky structure; extremely firm; clay films on some ped faces; few shale fragments; very strongly acid; clear, wavy boundary.

B3—26 to 40 inches, yellowish-brown (10YR 5/8) shaly silty clay loam; many, fine, distinct, light yellowish-brown (2.5Y 6/4) and light olive-gray (5Y 6/2) mottles; weak, fine, subangular blocky structure; firm; very strongly acid; clear, wavy boundary.

C—40 to 48 inches +, olive (5Y 4/4) and light olive-brown (2.5Y 5/6) shale; soft and weathered; coatings of gray, black, or yellowish red on most shale fragments; very strongly acid.

Dewey silt loam, 6 to 10 percent slopes, eroded, 1.5 miles east of Liberty Cumberland Presbyterian Church.

A1—0 to 2 inches, dark grayish-brown (10YR 4/2) silt loam; pale brown (10YR 6/3) when dry; weak, very fine, granular structure; very friable; many small roots; few chert fragments; strongly acid; abrupt, smooth boundary.

A3—2 to 8 inches, strong-brown (7.5YR 5/6) silt loam; weak, very fine, granular structure; very friable; slightly sticky; many small roots; few chert fragments; extremely acid; clear, wavy boundary.

B1—8 to 16 inches, red (2.5Y 4/8) silty clay loam, mottled with strong brown; weak, fine, subangular blocky structure; firm; very sticky; extremely acid; clear, wavy boundary.

B21t—16 to 38 inches, dark-red (2.5YR 3/6) silty clay; red (2.5YR 5/6) when dry; moderate, fine, angular blocky structure; very firm; slightly plastic; patchy clay films on some ped faces; very strongly acid; gradual, wavy boundary.

B22t—38 to 44 inches, red (2.5YR 4/6) silty clay; many, fine, prominent, reddish-yellow (7.5YR 6/6) mottles; moderate, fine, angular blocky structure; extremely firm; plastic; clay films on numerous ped faces; very strongly acid; clear, wavy boundary.

B3—44 to 60 inches +, red (10R 4/6) silty clay loam; many, fine, prominent, reddish-yellow (7.5YR 6/6) mottles; weak, fine, subangular blocky structure; very firm; very sticky; very strongly acid.

Etowah loam, 0 to 2 percent slopes, 1 mile north of Gordon-Bartow County line, on U.S. Highway No. 41.

Ap—0 to 8 inches, dark-brown (7.5YR 3/2) loam; weak, fine, granular structure; very friable; many fine roots; common, small, black concretions; very strongly acid; abrupt, smooth boundary.

B1—8 to 15 inches, yellowish-red (5YR 4/6) and dark-brown (7.5YR 3/2) heavy silt loam; moderate, fine, subangular blocky structure; friable; few fine roots; few small wormholes; slight mixing of Ap and B1; common, small, black concretions; strongly acid; clear, wavy boundary.

B21t—15 to 32 inches, red (2.5YR 4/6) silty clay loam; moderate, fine, subangular blocky structure; firm; few patchy clay films on ped faces; few chert fragments; common, small, black concretions; very strongly acid; gradual, wavy boundary.
B22t—32 to 48 inches, yellowish-red (5YR 5/6) silty clay; moderate, fine, subangular blocky structure; firm; few patchy clay films on some ped faces; few chert fragments; common small concretions; very strongly acid; clear, wavy boundary.
B3—48 to 52 inches +, strong-brown (7.5YR 5/8) silty clay; few, fine, prominent, red (2.5YR 4/6) and olive-yellow (2.5Y 6/6) mottles; weak, fine, subangular blocky structure; firm; common chert fragments; common small concretions; very strongly acid.

Farragut silt loam, 2 to 6 percent slopes, eroded, 0.25 mile west of Scottsville, on the Scottsville-Plainville Road.

Ap—0 to 7 inches, dark reddish-brown (5YR 3/4) silt loam; weak, fine, granular structure; friable when moist; many roots; very strongly acid; abrupt, smooth boundary.
B1—7 to 14 inches, dark-red (2.5YR 3/6) silty clay loam; dark reddish-brown (5YR 3/4) silt coating on ped faces; weak, fine, subangular blocky structure; firm when moist; many roots; very strongly acid; clear, wavy boundary.
B21t—14 to 29 inches, dark-red (2.5YR 3/6) silty clay; moderate, fine, subangular blocky structure; very firm when moist; few roots; clay films on some ped surfaces; few black concretions; very strongly acid; gradual, wavy boundary.
B22t—29 to 35 inches, red (2.5YR 4/6) silty clay; moderate, fine, subangular blocky structure; very firm when moist; clay films on some ped surfaces; very strongly acid; clear, wavy boundary.
B3—35 to 50 inches +, yellowish-red (5YR 4/8) silty clay; weak, fine, subangular blocky structure; very firm when moist; very strongly acid.

Fullerton cherty silt loam, 15 to 25 percent slopes, 2.5 miles south-southwest of Liberty Cumberland Presbyterian Church, on dirt road 1.4 miles west-southwest of State Highway No. 53.

A1—0 to 3 inches, light olive-brown (2.5Y 5/4) cherty silt loam; weak, fine, granular structure; friable; many fine roots; 20 percent chert, by volume; very strongly acid; abrupt, smooth boundary.
A21—3 to 9 inches, yellowish-brown (10YR 5/6) cherty silt loam; weak, fine, granular structure; friable; many fine roots; 15 percent chert, by volume; very strongly acid; clear, wavy boundary.
A22—9 to 13 inches, brownish-yellow (10YR 6/6) cherty silt loam; weak, fine, granular structure; friable; many fine roots; 15 percent chert, by volume; very strongly acid; clear, wavy boundary.
B21—13 to 18 inches, strong-brown (7.5YR 5/6) silty clay loam; weak, fine, subangular blocky structure; firm; 10 percent chert, by volume; gray coatings on ped surfaces; very strongly acid; clear, wavy boundary.
B22t—18 to 26 inches, yellowish-red (5YR 5/6) silty clay loam; brownish-yellow splotches; moderate, fine, subangular blocky structure; very firm; 6 percent chert, by volume; clay films on many ped surfaces; very strongly acid; gradual, wavy boundary.
B23t—26 to 42 inches, yellowish-red (5YR 5/8) silty clay; few, fine, distinct, strong-brown (7.5YR 5/8) mottles; moderate, medium, subangular blocky structure; extremely firm; 5 percent chert, by volume; clay films on ped surfaces; very strongly acid; gradual, wavy boundary.
B24t—42 to 55 inches, yellowish-red (5YR 5/8) silty clay; common, fine, distinct, strong-brown (7.5YR 5/8) mottles; moderate, medium, subangular blocky structure; extremely firm; 8 percent chert fragments, by volume; clay films on ped surfaces; very strongly acid; gradual, wavy boundary.
B3—55 to 65 inches +, yellowish-red (5YR 5/8) very cherty silty clay loam; common, fine, distinct, brownish-yellow (10YR 6/8) mottles; moderate, fine, subangular blocky structure; firm; 25 percent chert, by volume; very strongly acid.

Gilpin stony silt loam, from an area of Gilpin-Dekalb stony complex, 25 to 60 percent slopes, east side of Horn Mountain, 3.9 miles west of railroad and State Highway No. 143 crossing Sugar Valley.

A1—0 to 1 inch, very dark gray (10YR 3/1) stony silt loam; weak, very fine, granular structure; very friable; about 35 percent stones, cobblestones, and gravel, by volume; extremely acid; abrupt, smooth boundary.
A2—1 inch to 6 inches, light olive-brown (2.5Y 5/4) stony silt loam; weak, fine, granular structure; very friable; about 35 percent stones, cobblestones, and gravel, by volume; very strongly acid; clear, smooth boundary.
A3—6 to 9 inches, light yellowish-brown (10YR 6/4) gravelly loam; weak, medium, granular structure; friable; about 25 percent sandstone gravel, by volume; very strongly acid; clear, smooth boundary.
B1t—9 to 12 inches, yellowish-brown (10YR 5/4) gravelly silty clay loam; weak, fine, subangular blocky structure; firm; about 18 to 20 percent sandstone gravel, by volume; very strongly acid; clear, smooth boundary.
B2t—12 to 20 inches, strong-brown (7.5YR 5/6) silty clay loam; moderate, fine, angular blocky structure; firm; roots are flattened, but only a few peds and wormholes have clay films; very strongly acid; clear, wavy boundary.
B3—20 to 25 inches, strong-brown (7.5YR 5/8) gravelly and shaly silty clay loam; few, fine, prominent, red (2.5YR 5/6) and olive-yellow (2.5Y 6/6) mottles; weak, fine, subangular blocky structure; firm; 35 percent sandstone gravel and 25 percent shale fragments, by volume; very strongly acid; abrupt, irregular boundary.
C—25 to 50 inches +, olive-gray (5Y 5/2) and strong-brown (7.5YR 5/8) soft-shale; light-gray (2.5Y 7/2) and brownish-yellow (10YR 6/6) siltstone.

Hartsells fine sandy loam, 2 to 6 percent slopes, 2.6 miles south of Rosebud gin, and 100 yards north of paved road intersections.

Ap—0 to 4 inches, dark grayish-brown (2.5Y 4/2) fine sandy loam; moderate, very fine, granular structure; very friable; strongly acid; abrupt, wavy boundary.
A2—4 to 11 inches, dark grayish-brown (2.5Y 4/2) to grayish-brown (2.5Y 5/2) fine sandy loam; weak, very fine, granular structure; very friable; 3 percent sandstone gravel; strongly acid; abrupt, smooth boundary.
B&A—11 to 14 inches, light olive-brown (2.5Y 5/4) and dark grayish-brown (2.5Y 4/2) loam; weak, very fine, granular structure; slightly sticky; friable; hard; 1 percent concretions and gravel; small pores make up 6 percent of ped surfaces; strongly acid; abrupt, wavy boundary.
B1—14 to 20 inches, light olive-brown (2.5Y 5/4) loam; weak, very fine, subangular blocky to granular structure; friable; few splotches of light brownish gray (2.5Y 6/2); pores and old root holes make up 6 to 7 percent of ped surfaces; 1 percent dark reddish-brown concretions; strongly acid.
B21t—20 to 38 inches, yellowish-brown (10YR 5/4) light sandy clay loam; weak, fine, subangular blocky structure; friable; slightly hard; some clay bridges between sand grains; small pores, old root holes and wormholes make up 5 percent of ped surfaces; 2 percent dark reddish-brown (2.5YR 3/4) concretions; strongly acid; clear, wavy boundary.
B22t—38 to 46 inches, brown (10YR 5/3) and yellowish-red (5YR 5/6) loam; common, fine, distinct, light yellowish-brown (2.5Y 6/4) mottles; weak, very fine, subangular blocky structure; friable; some clay bridges between sand grains; few old root holes; 2 percent dark reddish-brown concretions; strongly acid; clear, wavy boundary.
B3—46 to 61 inches +, yellowish-brown (10YR 5/6) fine sandy loam; common, fine, faint, light brownish-gray (2.5Y 6/2) mottles; weak, fine, granular to subangular blocky structure; friable to slightly brittle; 1 percent dark-red and

dark reddish-brown concretions; few old root holes; 4 percent small pores; strongly acid.

Jefferson gravelly fine sandy loam, 6 to 10 percent slopes, 3 miles southwest of Oostanaula School and 0.25 mile west of State Highway 156, on dirt road.

Ap—0 to 5 inches, dark grayish-brown (10YR 4/2) gravelly fine sandy loam; weak, fine, granular structure; very friable; 15 to 20 percent gravel and chert, by volume; many fine roots; very strongly acid; clear, wavy boundary.

A2—5 to 9 inches, light yellowish-brown (10YR 6/4) gravelly fine sandy loam; weak, fine, granular structure; very friable; 15 to 20 percent gravel and chert, by volume; many fine roots; very strongly acid; clear, wavy boundary.

B1—9 to 16 inches, yellowish-brown (10YR 5/6) clay loam; weak, fine, subangular blocky structure; firm; few fine roots; very strongly acid; clear, wavy boundary.

B21t—16 to 40 inches, yellowish-brown (10YR 5/8) and yellowish-red (5YR 5/8) silty clay loam; weak, fine, subangular blocky structure; firm; clay films on some ped surfaces and in wormholes; very strongly acid; clear, wavy boundary.

B22t—40 to 48 inches, yellowish-red (5YR 5/8) silty clay loam; many, fine, distinct splotches of strong brown (7.5YR 5/6) and pale brown (10YR 6/3); moderate, fine, subangular blocky structure; very firm; clay films on some ped surfaces; 8 percent chert and sandstone gravel, by volume; strongly acid; clear, wavy boundary.

B23t—48 to 52 inches +, yellowish-red (5YR 5/8) silty clay loam; many, fine, prominent, light-gray (5Y 7/1), brownish-yellow (10YR 6/6), and strong-brown (7.5YR 5/6) splotches; moderate, fine, subangular blocky structure; very firm; clay films on few peds and in some wormholes and root holes; 10 percent sandstone gravel and chert, by volume; very strongly acid.

Landisburg cherty silt loam, 0 to 2 percent slopes, 0.75 mile south of Crane Eater Church.

Ap—0 to 8 inches, dark grayish-brown (10YR 4/2) cherty silt loam; weak, very fine, granular structure; friable; few pores; fine roots; 20 percent chert, by volume; very strongly acid; abrupt, smooth boundary.

A2—8 to 12 inches, light olive-brown (2.5Y 5/6) silt loam; weak, very fine, granular structure; friable; few pores; many fine roots; 10 percent chert, by volume; very strongly acid; clear, smooth boundary.

B22—12 to 21 inches, brownish-yellow (10YR 6/6) silty clay loam; weak, very fine, subangular blocky structure; firm; few fine roots; 12 percent gravel and chert by volume; very strongly acid; abrupt, wavy boundary.

B22x—21 to 28 inches, brownish-yellow (10YR 6/6) silty clay loam; common, medium, distinct, pale-olive (5Y 6/3) mottles; moderate, fine, subangular blocky structure; firm when moist, hard when dry; compact and brittle; 5 percent small black concretions; 5 percent small chert, by volume; very strongly acid; abrupt, wavy boundary.

B3—28 to 40 inches, yellowish-brown (10YR 5/6), red (2.5YR 5/6), and strong-brown (7.5YR 5/6) silty clay loam; moderate, medium, subangular blocky structure; firm; extremely acid; abrupt, wavy boundary.

C—40 to 50 inches +, brownish-yellow (10YR 6/8), yellowish-brown (10YR 5/6), light-gray (10YR 7/2), and yellowish-red (5YR 4/6) slightly weathered shale and chert.

Leadvale silt loam, 0 to 2 percent slopes, pasture on Northwest Georgia Experiment Station farm, 0.3 mile south of office building.

Ap—0 to 5 inches, dark yellowish-brown (10YR 4/4) silt loam; weak, fine, granular structure; slightly sticky when wet, friable when moist, soft when dry; many fine roots; very strongly acid; clear, smooth boundary.

B1—5 to 11 inches, brownish-yellow (10YR 6/6) silty clay loam; weak, fine, granular structure; slightly sticky when wet, firm when moist, hard when dry; 2 percent black concretions, by volume; many fine roots; very strongly acid; clear, wavy boundary.

B21—11 to 25 inches, yellow (10YR 7/6) silty clay loam; moderate, medium, subangular blocky structure; very firm; 3 percent black concretions; very strongly acid; clear, wavy boundary.

B22x—25 to 40 inches, olive yellow (2.5Y 6/6) silty clay loam; common, medium, distinct, yellowish-brown (10YR 5/8) mottles; moderate, fine, subangular blocky structure; compact and brittle; sticky when wet, very firm when moist, very hard when dry; 15 percent black concretions, by volume; very strongly acid; clear, wavy boundary.

B3—40 to 50 inches +, light olive-brown (2.5Y 5/6) silty clay loam; many, medium, prominent, light-gray (5Y 7/2) and yellowish-red (5YR 5/8) mottles; weak, fine, subangular blocky structure; firm; very strongly acid.

Locust gravelly fine sandy loam, 2 to 6 percent slopes, 2.4 miles west of railroad and State Highway 143 crossing in Sugar Valley.

A1—0 to 1 inch, grayish-brown (10YR 5/2) fine sandy loam; weak, very fine, granular structure; very friable; numerous roots; very strongly acid; abrupt, smooth boundary.

A21—1 inch to 4 inches, grayish-brown (2.5Y 5/2) gravelly fine sandy loam; weak, very fine, granular structure; very friable; numerous fine roots; 15 percent sandstone gravel, by volume; very strongly acid; clear, smooth boundary.

A22—4 to 9 inches, light yellowish-brown (2.5Y 6/4) fine sandy loam; weak, very fine, granular structure; very friable; many fine roots; 5 percent sandstone gravel, by volume; very strongly acid; clear, smooth boundary.

B21—9 to 15 inches, brownish-yellow (10YR 6/6) light sandy clay loam; weak, very fine, subangular blocky to granular structure; friable; few roots; 5 percent sandstone gravel, by volume; very strongly acid; clear, smooth boundary.

B22—15 to 19 inches, yellowish-brown (10YR 5/6) gravelly sandy clay loam; weak, very fine, subangular blocky structure; firm; 65 percent gravel, mostly sandstone, by volume; very strongly acid; abrupt, wavy boundary.

B23x—19 to 24 inches, brownish-yellow (10YR 6/6) gravelly sandy clay loam; common, fine, faint, very pale brown (10YR 7/4) mottles; weak, very fine, subangular blocky structure; firm to hard when dry and slightly brittle; 35 percent sandstone gravel and chert, by volume; very strongly acid; gradual, wavy boundary.

B3—24 to 36 inches, yellowish-brown (10YR 5/6) gravelly clay loam; common, fine, faint, very pale brown (10YR 7/4) mottles; weak, fine, subangular blocky structure; firm; 80 percent sandstone gravel and chert; extremely acid; abrupt, wavy boundary.

B21b—36 to 48 inches, yellowish-brown (10YR 5/8) silty clay; common, fine, distinct, gray (5Y 6/1) mottles; weak, fine, subangular blocky structure; very firm when moist, very hard when dry; extremely acid; clear, wavy boundary.

B22b—48 to 56 inches +, gray (5Y 6/1) clay; many, medium, distinct, yellowish-brown (10YR 5/8) mottles; weak, very fine, subangular blocky structure; very firm; very hard; extremely acid.

Monongahela fine sandy loam, 2 to 6 percent slopes, 2.25 miles southeast of Antioch Baptist Church.

Ap—0 to 6 inches, dark grayish-brown (10YR 4/2) fine sandy loam; weak, very fine, granular structure; very friable when moist; 10 percent small chert and gravel on surface; common small roots; mildly alkaline; abrupt, smooth boundary.

A2—6 to 10 inches, brown (10YR 5/3) loam; weak, fine, granular structure; very friable when moist; numerous small pores; 12 percent chert, by volume; common small roots; mildly alkaline; clear, wavy boundary.

B1—10 to 14 inches, yellowish-brown (10YR 5/4) light clay loam; weak, very fine, subangular blocky structure; firm when moist; 4 percent small dark-red (2.5YR 3/6) gravel, by volume; very strongly acid; clear, smooth boundary.

B21—14 to 23 inches, yellowish-brown (10YR 5/6) clay loam; strong, fine, subangular blocky structure; firm when moist; 5 percent chert fragments and small dark-red gravel, by volume; very strongly acid; clear, wavy boundary.

B22x—23 to 30 inches, light yellowish-brown (10YR 6/4) gravelly clay loam; many, medium, prominent, light yellowish-brown (2.5Y 6/4) and strong-brown (7.5YR 5/6) mottles; strong, fine, angular blocky or subangular blocky structure; firm when moist, hard when dry; slightly brittle and compact; very strongly acid; clear, smooth boundary.

B31—30 to 36 inches, yellowish-brown (10YR 5/8) silty clay loam; common, medium, prominent, yellowish-red (5YR 5/6) and pale-brown (10YR 6/3) mottles; weak, very fine, subangular blocky structure; very firm when moist; 3 percent chert fragments and small dark-red gravel, by volume; very strongly acid; clear, smooth boundary.

B32—36 to 48 inches +, yellowish-brown (10YR 5/6) silty clay loam; many, medium, distinct, very pale brown (10YR 7/3) and yellowish-red (5YR 5/6) mottles; weak, very fine, subangular blocky structure; firm when moist; 3 percent chert fragments and small dark-red gravel, by volume; very strongly acid.

Muse silt loam, 2 to 6 percent slopes, eroded, 0.3 mile west-northwest of the Northwest Georgia Experiment Station office.

Ap—0 to 6 inches, dark-brown (10YR 3/3) silt loam; weak, fine, granular structure; very friable; few shale fragments; few concretions; many fine roots; medium acid; abrupt, smooth boundary.

B1—6 to 12 inches, dark-brown to brown (7.5YR 4/4) silty clay loam; weak, fine, subangular blocky structure; firm when moist; many shale fragments; few small black concretions; many fine roots; very strongly acid; clear, wavy boundary.

B21t—12 to 42 inches, yellowish-red (5YR 5/8) silty clay loam; moderate, fine, subangular blocky structure; firm; few clay films on some ped faces; many shale fragments; few small black concretions and few small roots; very strongly acid; clear, wavy boundary.

B22t—42 to 52 inches +, strong-brown (7.5YR 5/6) silty clay loam; moderate, fine, subangular blocky structure; firm; few clay films on ped faces; many shale fragments; few small black concretions; very strongly acid.

Nolichucky fine sandy loam, 2 to 6 percent slopes, road cut 0.25 mile east of Oostanaula School.

Ap—0 to 8 inches, brown (10YR 5/3) fine sandy loam; weak, very fine, granular structure; very friable when moist; numerous fine roots; very strongly acid; clear, smooth boundary.

A2—8 to 12 inches, yellowish-brown (10YR 5/6) fine sandy loam; weak, fine, granular structure; numerous fine roots; very strongly acid; clear, smooth boundary.

B1—12 to 16 inches, strong-brown (7.5YR 5/6) clay loam; weak, fine, subangular blocky structure; firm when moist; many fine roots; very strongly acid; clear, wavy boundary.

B21t—16 to 35 inches, yellowish-red (5YR 4/8) fine sandy clay loam; few, fine, prominent, yellowish-brown (10YR 5/6) mottles; moderate to strong, fine, subangular blocky structure; firm when moist; few fine roots and pore spaces; clay films on some ped surfaces; very strongly acid; gradual, wavy boundary.

B22t—35 to 52 inches +, red (2.5YR 4/8) fine sandy clay loam; few, fine, prominent, yellowish-brown (10YR 5/6) mottles; moderate to strong, fine, subangular blocky structure; very firm when moist; clay films on few ped surfaces; few, fine mica flakes; very strongly acid.

Rarden silt loam, 2 to 6 percent slopes, eroded, 1.25 miles east of Interstate Highway No. 75, on State Highway No. 156.

Ap—0 to 3 inches, brown to dark-brown (10YR 4/3) silt loam; weak, fine, granular structure; friable; numerous roots; very strongly acid; clear, smooth boundary.

A2—3 to 6 inches, light yellowish-brown (10YR 6/4) silt loam; weak, fine, granular structure; friable; many roots; very strongly acid; clear, wavy boundary.

B1—6 to 9 inches, yellowish-brown (10YR 5/8) and light yellowish-brown (10YR 6/4) silty clay loam; weak, fine, subangular blocky structure; firm; very strongly acid; clear, wavy boundary.

B2t—9 to 23 inches, strong-brown (7.5YR 5/6) and red (2.5YR 4/8) silty clay or clay; moderate, medium, subangular blocky structure; extremely firm; plastic; few clay films on ped faces; very strongly acid; clear, wavy boundary.

B3—23 to 34 inches, light olive-brown (2.5Y 5/6) shaly silty clay; weak, fine, subangular blocky structure; firm; some shale surfaces have black coating; very strongly acid; clear, irregular boundary.

C—34 to 47 inches +, soft, light olive-brown (2.5Y 5/4) shale; very strongly acid.

Sequatchie loam, 0 to 2 percent slopes, 2.1 miles west of Northwest Georgia Experiment Station.

Ap—0 to 9 inches, dark-brown (10YR 4/3) loam; weak, fine, granular structure; very friable; many fine roots; strongly acid; abrupt, smooth boundary.

B21—9 to 26 inches, strong-brown (7.5YR 5/6) fine sandy clay loam; moderate, medium, subangular blocky structure; friable; few small roots; strongly acid; gradual, wavy boundary.

B22—26 to 48 inches +, strong-brown (7.5YR 5/8) fine sandy clay loam; few, fine, distinct, light yellowish-brown (2.5Y 6/4) mottles; weak, medium, subangular blocky structure; firm; very strongly acid.

Sequoia silt loam, 2 to 6 percent slopes, eroded, 1.5 miles south-southwest of Liberty Cumberland Presbyterian Church, off State Highway No. 53.

Ap—0 to 6 inches, dark yellowish-brown (10YR 3/4) silt loam; weak, fine, granular structure; friable; few fine roots; very strongly acid; abrupt, smooth boundary.

B1—6 to 10 inches, mixed yellowish-red (5YR 5/6) and dark-brown (7.5YR 4/4) silty clay loam; weak, fine, subangular blocky structure; firm; few small black concretions; very strongly acid; clear, wavy boundary.

B21t—10 to 16 inches, yellowish-red (5YR 4/8) silty clay; moderate, fine, subangular blocky structure; extremely firm; few small black concretions; very strongly acid; gradual, wavy boundary.

B22t—16 to 28 inches, yellowish-red (5YR 5/8) silty clay; moderate, fine, subangular blocky structure; extremely firm; plastic; few patchy clay films on ped faces; few small black concretions; very strongly acid; clear, wavy boundary.

B23t—28 to 31 inches, yellowish-red (5YR 5/8) silty clay; few, fine, distinct brownish-yellow (10YR 6/8) mottles; moderate, fine, subangular blocky structure; few thin clay films on ped faces; few small black concretions; very strongly acid; clear, wavy boundary.

B3—31 to 50 inches +, brownish-yellow (10YR 6/8) silty clay loam; few, fine, distinct yellowish-red (5YR 5/8) mottles; weak, fine, subangular blocky structure; firm; few small black concretions; very strongly acid.

Tupelo silt loam, 0 to 2 percent slopes, 1.5 miles south-southwest of Liberty Cumberland Presbyterian Church.

A1—0 to 2 inches, dark grayish-brown (10YR 4/2) silt loam; weak, fine, granular structure; friable; few small concretions; many fine roots; strongly acid; abrupt, smooth boundary.

A2—2 to 7 inches, light yellowish-brown (10YR 6/4) silt loam; weak, fine, granular structure; friable; few small concretions and few roots; very strongly acid; clear, wavy boundary.

B1—7 to 11 inches, light yellowish-brown (2.5Y 6/4) silty clay loam; few, fine, faint, pale-olive mottles; weak, fine, subangular blocky structure; firm; many small concretions and few roots; very strongly acid; clear, wavy boundary.

B21t—11 to 20 inches, light yellowish-brown (2.5Y 6/4) silty clay; many, fine, prominent, strong-brown (7.5YR 5/6) and yellowish-brown (10YR 5/8) mottles; moderate, fine, subangular blocky structure; firm when dry, extremely plastic when moist; common clay films; 6 percent small

concretions, by volume; strongly acid; clear, wavy boundary.
B22tg—20 to 34 inches, pale-olive (5Y 6/4) clay; many, fine, prominent, strong-brown (7.5YR 5/6) mottles; moderate, fine, subangular block structure; extremely firm when dry, plastic when moist; 10 percent small concretions; common clay films; slightly acid; gradual, wavy boundary.
B23tg—34 to 46 inches, olive-gray (5Y 5/2) clay; many, fine, prominent, yellowish-brown (10YR 5/6) mottles; moderate, fine, subangular blocky structure; extremely firm when dry, plastic when moist; 8 percent small concretions, by volume; clay films on most ped surfaces; mildly alkaline; abrupt, wavy boundary.
R—46 inches +, limestone.

Waynesboro fine sandy loam, 2 to 6 percent slopes, eroded, 0.5 mile north of Calhoun city limits on U.S. Highway No. 41, then 0.5 mile west on paved road.

Ap—0 to 7 inches, dark-brown (10YR 3/3) fine sandy loam; weak, fine, granular structure; friable; many fine roots; very strongly acid; abrupt, smooth boundary.
B1—7 to 12 inches, reddish-brown (5YR 4/4) clay loam; weak, fine, subangular blocky structure; firm; few fine roots; very strongly acid; clear, wavy boundary.
B21t—12 to 28 inches, yellowish-red (5YR 4/8) clay loam; weak, fine, subangular blocky structure; firm; clay bridging between sand grains; few concretions; very strongly acid; gradual, wavy boundary.
B22t—28 to 44 inches, red (2.5YR 4/6) and dark-red (10R 3/6) silty clay loam; few, fine, prominent, yellowish-brown (10YR 5/6) mottles; moderate, fine, subangular blocky structure; extremely firm; patchy clay films on some ped faces; a little small chert and gravel; very strongly acid; gradual, wavy boundary.
B23t—44 to 50 inches +, dark-red (2.5YR 3/6) silty clay; few, medium, prominent, strong-brown (7.5YR 5/8) mottles; moderate, fine, subangular blocky structure; extremely firm; patchy clay films on some ped faces; a little small gravel and chert; very strongly acid.

Wolftever silt loam, concretionary variant, 2 to 6 percent slopes, 1.1 miles west of U.S. Highway No. 41 and 1.27 miles north of Gordon-Bartow County line.

Ap—0 to 8 inches, brown (10YR 5/3) silt loam; weak, fine, granular structure; friable; a little small chert and a few roots; strongly acid; abrupt, smooth boundary.
B2—8 to 18 inches, strong-brown (7.5YR 5/6) silty clay loam; moderate, fine, subangular blocky structure; firm; a few concretions and a little chert; medium acid; gradual, wavy boundary.
IIC1cn—18 to 24 inches, gravel, coarse sand, and black concretions in small amount of strong brown (7.5YR 5/6), slightly sticky matrix material; strongly acid; abrupt, smooth boundary.
IIC2cn—24 to 48 inches +, weakly cemented fine chert and black concretions.

Reddish-Brown Lateritic soils

The Reddish-Brown Lateritic great soil group is in the zonal order and consists of well-drained soils that have a dark reddish-brown, granular surface layer and a dark-red, friable, clay B horizon. These soils develop in a warm, humid, tropical climate, under tropical forest vegetation.

In Gordon County the Reddish-Brown Lateritic group is represented by the Cumberland soils. These soils do not entirely qualify as Reddish-Brown Lateritic soils, because they did not develop under a tropical forest or in a tropical climate and their subsoil is less friable than typical. They do, however, have a dark reddish-brown, granular surface layer and a thick, dark-red to red B horizon. The clay in the subsoil is mainly kaolinite. These soils differ from Red-Yellow Podzolic soils in that they do not have an A2 horizon, but the clay fraction and the reaction are not significantly different from those of Red-Yellow Podzolic soils.

The Cumberland soils in Gordon County are on stream terraces. They developed in old general alluvium washed from soils underlain by limestone and, in places, by sandstone and shale. They are characterized by a dark reddish-brown (5YR 3/4) friable loam surface layer and a thick, dark-red (2.5YR 3/6), firm silty clay B2 horizon. The B2 horizon has weak to strong, fine, subangular blocky structure.

A detailed description of a profile of a representative Cumberland soil follows.

Cumberland loam, 2 to 6 percent slopes, 600 yards north of Bartow-Gordon County line, on left of U.S. Highway No. 41.

Ap—0 to 8 inches, dark reddish-brown (5YR 3/4) loam; weak, fine, granular structure; friable; few fine roots; common small and medium hard black concretions; extremely acid; abrupt, smooth boundary.
B1—8 to 14 inches, dark reddish-brown (2.5YR 3/4) silty clay loam; weak, fine, subangular blocky structure; firm; few fine roots; common small and medium hard black concretions; few chert fragments; very strongly acid; clear, wavy boundary.
B21t—14 to 34 inches, dark-red (2.5YR 3/6) silty clay; weak, fine, subangular blocky structure; firm; common small and medium hard black concretions; few chert fragments; clay films on many ped surfaces; very strongly acid; gradual, wavy boundary.
B22t—34 to 50 inches +, dark-red (2.5YR 3/6) silty clay; strong, fine, subangular blocky structure; very firm; many small and medium hard black concretions; clay films on many ped surfaces; few chert fragments; very strongly acid.

Gray-Brown Podzolic soils

The Gray-Brown Podzolic great soil group is in the zonal order and consists of soils that have rather thin A0 and A1 horizons above a grayish-brown A2 horizon. The A2 horizon is underlain by a darker colored, more clayey B2 horizon. These soils form under deciduous forest, in a temperate, moist climate.

The Whitwell soils are the only Gray-Brown Podzolic soils in Gordon County. These soils have been disturbed by cultivation, and the present Ap layer consists of the original thin A1 and A2 horizons and, in some areas, the former B1 horizon. The surface layer is dark-brown (10YR 4/3), friable silt loam. The B2 horizon is yellowish-brown (10YR 5/8), firm, mottled silty clay loam and has weak, fine, subangular blocky structure to moderate, medium, subangular blocky structure.

The Whitwell soils developed in old general alluvium and are associated with the Pope and Philo soils. They are at slightly higher elevations than the soils on first bottoms, and their profile shows a moderate degree of development.

A detailed description of a profile of a representative Whitwell soil follows.

Whitwell silt loam, 0 to 2 percent slopes, 0.5 mile east of Oostanaula River bridge, on State Highway No. 156.

Ap—0 to 8 inches, dark-brown (10YR 4/3) silt loam; weak, fine, granular structure; friable; many roots; few wormholes; very strongly acid; abrupt, wavy boundary.
B1—8 to 14 inches, yellowish-brown (10YR 5/6) silty clay loam; few, medium, faint, dark-brown (10YR 4/3) mottles; weak, medium, subangular blocky structure; firm;

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few to many roots; few small mica flakes; few wormholes; very strongly acid; clear, wavy boundary.

B21—14 to 28 inches, yellowish-brown (10YR 5/8) silty clay loam; common, fine, distinct, light yellowish-brown (2.5Y 6/4) mottles; sticky when wet; moderate, medium, subangular blocky structure; firm; few roots in upper portion; few small mica flakes, brown concretions, and wormholes; very strongly acid; clear, wavy boundary.

B22—28 to 35 inches, yellowish-brown (10YR 5/8) light silty clay loam; many, medium, distinct, light yellowish-brown (2.5Y 6/4) and dark-brown (7.5YR 4/4) mottles; weak, fine, subangular blocky structure; firm; sticky when wet; small brown concretions; very strongly acid; clear, wavy boundary.

B3—35 to 46 inches +, yellowish-brown (10YR 5/8) silt loam; many, coarse, distinct, light yellowish-brown (2.5Y 6/4) and dark-brown (7.5YR 4/4) mottles; structureless; slightly sticky; small brown concretions; very strongly acid.

Sols Bruns Acides

Sols Bruns Acides are in the zonal order. This group consists of soils that have a thin A1 horizon and a faint to evident A2 horizon. The B horizon contains little or no more clay than the horizons above and below it. It is distinguished chiefly by color and is redder in hue or of higher chroma than either the A or C horizons. Soils of this great soil group have a very low degree of base saturation and are mostly strongly acid.

The Dekalb and Lehew soils represent this great soil group in Gordon County. The B horizon of the Dekalb soils is yellowish-brown (10YR 5/4), friable stony sandy clay loam, and it has weak, fine, granular structure. Sandstone is at a depth of 12 to 25 inches.

The Lehew soils are developing mainly in material weathered from sandstone and, to a minor extent, from shale. The B2 horizon is reddish-brown (2.5YR 4/4) and yellowish-red (5YR 5/6), friable gravelly clay loam with weak, fine, subangular blocky structure. Sandstone is at a depth of 2 to 3 feet.

A detailed description of a profile of a representative soil of the Dekalb series and of the Lehew series follows.

Dekalb stony fine sandy loam, from an area of Gilpin-Dekalb stony complex, 25 to 60 percent slopes, west side of Horn Mountain, 4 miles west of Sugar Valley.

A1—0 to 2 inches, gray (10YR 5/1) stony fine sandy loam; very friable when moist; weak, fine, granular structure; 10 percent small sandstone fragments; very strongly acid; abrupt, smooth boundary.

A3—2 to 10 inches, light yellowish-brown (2.5Y 6/4) stony fine sandy loam; weak, fine, granular structure; very friable when moist; 20 percent rock fragments; very strongly acid; abrupt, wavy boundary.

B—10 to 20 inches, yellowish-brown (10YR 5/4) stony sandy clay loam; weak, fine, granular structure; friable when moist; 15 percent rock fragments and angular stones; very strongly acid.

C—20 to 30 inches +, light brownish-gray (10YR 6/2) and dusky-red (10R 3/4) acid sandstone.

Lehew gravelly fine sandy loam, from an area of Lehew-Dekalb gravelly fine sandy loams, 10 to 15 percent slopes, 1.1 miles west of Northwest Georgia Experiment Station.

Ap—0 to 5 inches, dark grayish-brown (10YR 4/2) gravelly fine sandy loam; weak, fine, granular structure; very friable; common fine roots; very strongly acid; abrupt, wavy boundary.

B1—5 to 12 inches, weak-red (2.5YR 4/2) loam; weak, fine, subangular blocky structure; friable; few fine roots; 5 percent sandstone fragments; very strongly acid; abrupt, wavy boundary.

B2—12 to 20 inches, reddish-brown (2.5YR 4/4) and yellowish-red (5YR 5/6) gravelly clay loam; weak, fine, subangular blocky structure; friable; 15 percent sandstone fragments and a few shale fragments; few pressure faces; roots flattened; very strongly acid; abrupt, wavy boundary.

B3—20 to 36 inches, reddish-brown (2.5YR 4/4), light-gray (2.5Y 7/2), and brownish-yellow (10YR 6/8) gravelly silty clay; weak, very fine, subangular blocky structure; friable; 70 percent sandstone, by volume; very strongly acid; abrupt, irregular boundary.

C—36 to 56 inches +, weak-red (10R 4/2), weathered, soft sandstone.

Planosols

The Planosol great soil group is in the intrazonal order and consists of soils that have one or more horizons that because of cementation, compaction, or high content of clay are abruptly separated from and in sharp contrast to an adjacent horizon (*8*). These soils formed in level or nearly level, imperfectly drained areas, under a cover of grass or trees, and in humid or subhumid climate.

The Planosols in Gordon County developed in a climate similar to that in which the typical zonal soils developed, but they generally are more moist and more poorly aerated. The vegetation was probably somewhat different from that on the Red-Yellow Podzolic soils, but deciduous forests predominated on both. Most Planosols appear to be older in development than the Red-Yellow Podzolic soils because they have a leached or lighter colored surface layer and a more compact subsoil. Geologic erosion has been slow because of relief, but slow geologic erosion is not likely to have been solely responsible for the formation of these soils. Possibly slow internal drainage, combined with slow surface drainage and unusual siltiness of the parent material, has caused the abnormal cementation in or below the B2 horizon.

In this county, the Planosol great soil group is represented by the Taft and Tyler soils, which have a fragipan, and by the Guthrie, Purdy, and Robertsville soils, which have a clayey B horizon. The somewhat poorly drained Taft soils occur on level, low stream terraces and are subject to occasional overflow. The somewhat poorly drained Tyler soils occur on gently sloping stream terraces. Both soils have a silty clay loam B2 horizon, over a brittle compact layer, or fragipan. The Purdy and Robertsville soils are poorly drained soils on level, low stream terraces and are subject to occasional overflow. The B2 horizon of the Purdy soils is gleyed silty clay or clay. The B2 horizon of the Robertsville soils is olive-gray, cherty, gleyed silty clay. The Guthrie soils are poorly drained and have a gleyed clay to silty clay B2 horizon.

Following is a detailed profile description of a representative soil of each soil series belonging to the Planosol great soil group.

Guthrie silt loam, clay subsoil variant, 1.25 miles southwest of Liberty Cumberland Presbyterian Church, 300 yards west of State Highway No. 53.

Ap—0 to 6 inches, dark grayish-brown (2.5Y 4/2) silt loam; few, fine, distinct, yellowish-brown (10YR 5/8) mottles; weak, very fine, granular structure; friable when moist; many fine roots; few shale fragments and concretions; slightly acid; clear, wavy boundary.

B1—6 to 10 inches, very dark grayish-brown (2.5Y 3/2) silty clay loam; common, fine, prominent, dark-brown (7.5YR 4/4) mottles; weak, fine, subangular blocky structure;

firm when moist; many fine roots; few concretions; slightly acid; abrupt, wavy boundary.

B21g—10 to 26 inches, dark-gray (N 4/0) clay; common, fine, prominent, yellowish-brown (10YR 5/8) mottles; massive; extremely firm and plastic; few roots and concretions; neutral; clear, wavy boundary.

B22g—26 to 36 inches, yellowish-brown (10YR 5/8) silty clay; many, medium, prominent, gray (N 5/0) mottles; massive; extremely firm and slightly plastic; many concretions; neutral; clear, wavy boundary.

C1—36 to 46 inches, gray (N 6/0) clay; common, fine, distinct, light olive-brown (2.5Y 5/6) mottles; massive; extremely firm and plastic; many concretions; mildly alkaline; clear, wavy boundary.

C2—46 to 50 inches +, gray (N 6/0) clay; many, medium, prominent, yellowish-brown (10YR 5/8) mottles; massive; extremely firm and plastic; many concretions; neutral.

Purdy silt loam, 0.5 mile east of Oostanaula School, then 0.5 mile south along Southern Railroad.

A1—0 to 3 inches, olive-gray (5Y 4/2) silt loam; weak, very fine, granular structure; friable; strongly acid; abrupt, smooth boundary.

A2—3 to 8 inches, gray (5Y 6/1) silt loam; weak, very fine, granular structure; friable; many pore spaces and few small wormholes; few small mica flakes; very strongly acid; gradual, wavy boundary.

B1—8 to 14 inches, gray (5Y 5/1) silty clay loam; common, medium, distinct, light olive-brown (2.5Y 5/6) mottles; weak, fine, subangular blocky structure; firm; few small mica flakes; very strongly acid; gradual, wavy boundary.

B21g—14 to 28 inches, gray (5Y 5/1) silty clay; common, medium, distinct, light olive-brown (2.5Y 5/4) mottles; weak, medium, subangular blocky structure; very firm; few small mica flakes; strongly acid; gradual, wavy boundary.

B22g—28 to 50 inches +, gray (5Y 6/1) silty clay to clay; many, coarse, prominent, yellowish-brown (10YR 5/8) and pale-olive (5Y 6/4) mottles; massive; very firm; few small mica flakes; very strongly acid.

Robertsville silt loam, clay subsoil variant, 1.8 miles south of Bellwood School.

Ap—0 to 6 inches, olive-gray (5Y 4/2) silt loam; few, fine, distinct, brownish-yellow (10YR 6/6) mottles; weak, fine, granular structure; friable; 5 percent chert, by volume; medium acid; abrupt, smooth boundary.

B1—6 to 10 inches, gray (5Y 6/1) silty clay loam; many, medium, distinct, brownish-yellow (10YR 6/6) mottles; moderate, fine, subangular blocky structure; firm; 10 percent chert, by volume; very strongly acid; gradual, wavy boundary.

B21g—10 to 25 inches, olive-gray (5Y 5/2) cherty silty clay; common, fine, distinct, brownish-yellow (10YR 6/6) mottles; moderate, medium, subangular blocky structure; extremely firm; 30 percent chert, by volume; mildly alkaline; gradual, wavy boundary.

B22g—25 to 35 inches, olive-gray (5Y 5/2) cherty silty clay; many, medium, distinct, brownish-yellow (10YR 6/6) mottles; moderate, medium, subangular blocky structure; extremely firm; 40 percent chert, by volume; mildly alkaline; gradual wavy boundary.

B3g—35 to 45 inches +, gray (5Y 5/1) very cherty clay; common, fine, distinct, olive-yellow (2.5Y 6/6) mottles; structureless; extremely firm; about 70 percent gravel and chert, by volume; mildly alkaline.

Taft silt loam, 0 to 2 percent slopes, 1.25 miles west of Bellwood School.

Ap—0 to 6 inches, light olive-brown (2.5Y 5/4) silt loam; weak, fine, granular structure; very friable; many fine roots; very strongly acid; abrupt, wavy boundary.

B1—6 to 10 inches, olive-brown (2.5Y 4/4) light silty clay loam; weak, fine, granular structure; friable; few roots; very strongly acid; clear, wavy boundary.

B2—10 to 24 inches, olive-yellow (2.5Y 6/6) silty clay loam; few, fine, faint, pale-yellow (5Y 7/3) mottles; weak, fine, subangular blocky structure; firm; 10 percent black concretions; very strongly acid; abrupt, wavy boundary.

B22x—24 to 38 inches, light yellowish-brown, (2.5Y 6/4) silty clay loam; many, medium, prominent, white (5Y 8/2) and yellowish-brown (10YR 5/6) mottles; moderate, fine, subangular blocky structure; very firm; compact and brittle; 5 percent black concretions; very strongly acid; gradual, wavy boundary.

B3—38 to 50 inches +, yellowish-brown (10YR 5/6) silty clay; many, medium, prominent, white (5Y 8/2) and pale-olive (5Y 6/4) mottles; moderate, fine, subangular blocky structure; extremely firm; 10 percent black concretions; very strongly acid.

Tyler fine sandy loam, 2 to 6 percent slopes, 0.5 mile southwest of Oostanaula School.

Ap—0 to 6 inches, light olive-brown (2.5Y 5/4) fine sandy loam; weak, fine, granular structure; very friable; many medium and fine roots and small pores; strongly acid; abrupt, smooth boundary.

B1—6 to 10 inches, light yellowish-brown (2.5Y 6/4) silty clay loam; weak, fine, subangular blocky structure; firm; few roots and pores; strongly acid; gradual, smooth boundary.

B2—10 to 18 inches, light olive-brown (2.5Y 5/6) heavy silty clay loam; weak, medium, subangular blocky structure; firm; very strongly acid; abrupt, smooth boundary.

C1x—18 to 36 inches, light yellowish-brown (2.5Y 6/4) heavy silt loam; many, medium, prominent, red (2.5YR 4/6) and pale-olive (5Y 6/3) mottles; strong, medium, angular blocky structure; extremely firm; compact and brittle; very strongly acid; gradual, wavy boundary.

C2—36 to 46 inches +, olive-yellow (2.5Y 6/6) gravelly silt loam; many, fine, prominent, light-gray (5Y 6/1) and red (2.5YR 5/6) mottles; weak, fine, subangular blocky structure; firm; very strongly acid.

Low-Humic Gley soils

The Low-Humic Gley great soil group is in the intrazonal order. It consists of poorly drained and somewhat poorly drained soils that have a very thin surface horizon, moderately high in organic-matter content, over a mottled gray and brown gleyed mineral horizon that is little different from the surface horizon in texture. Low-Humic Gley soils vary widely in texture. Their parent material varies widely in physical and chemical properties. These soils occur largely under a natural cover of swamp forest or marsh plants.

The Atkins and Melvin soils represent the Low-Humic Gley group in Gordon County. These soils do not entirely qualify as Low-Humic Gley soils, because they are not developing under swamp forest or marsh plants. However, both soils are poorly drained. They are developing in general alluvium on flood plains and are subject to frequent overflow. The Atkins soils have a mottled grayish-brown and light olive-gray A1 horizon, over mottled gray silt loam. The Melvin soils have a mottled dark grayish-brown and olive silt loam A1 horizon, over olive-gray cherty clay loam.

Following is a detailed profile description of a representative soil of each soil series of the Low-Humic Gley great soil group.

Atkins silt loam, 3 miles southwest of Oostanaula School, east of State Highway No. 156.

A11—0 to 2 inches, grayish-brown (2.5Y 5/2) silt loam; common, fine, distinct, light-gray (5Y 7/2) mottles; weak, fine, granular structure; friable; many fine roots; medium acid; abrupt, smooth boundary.

A12—2 to 8 inches, light olive-gray (5Y 6/2) silt loam; common, fine, prominent, yellowish-brown (10YR 5/8) mot-

tles; weak, fine, granular structure; friable; common fine roots; very strongly acid; clear, wavy boundary.

C1g—8 to 23 inches, gray (5Y 5/1) silt loam; few, fine, prominent, yellowish-brown (10YR 5/8) mottles; weak, fine, granular structure; friable; very strongly acid; clear, wavy boundary.

C2g—23 to 50 inches, gray (5Y 6/1) silt loam; medium, fine, distinct, light olive-brown (2.5Y 5/6) mottles; weak, fine, granular structure; friable; much small gravel in lower part; very strongly acid.

Melvin silt loam, 2.5 miles south-southwest of Liberty Cumberland Presbyterian Church.

A11—0 to 2 inches, dark grayish-brown (2.5Y 4/2) silt loam; weak, fine, granular structure; friable; numerous fine roots; a little chert; very strongly acid; abrupt, smooth boundary.

A12—2 to 12 inches, olive (5Y 5/4) silt loam; common, fine, distinct, yellowish-brown (10YR 5/6) and black (N 2/0) mottles; weak, fine, granular structure; friable; many fine roots; few black concretions and a little chert; very strongly acid; abrupt, wavy boundary.

C1g—12 to 22 inches, gray (5Y 6/1) loam; common, fine, distinct, light olive-brown (2.5Y 5/6) mottles; weak, fine, subangular blocky structure; friable; few fine roots and a little chert; slightly acid; clear, wavy boundary.

C2g—22 to 36 inches, olive-gray (5Y 5/2) cherty clay loam; weak, fine, granular structure; firm; very hard; 30 percent chert, by volume; slightly acid; gradual, wavy boundary.

C3g—36 to 50 inches +, light-gray to gray (5Y 6/1) cherty loam; structureless; friable; 75 percent chert, by volume; neutral.

Alluvial soils

Alluvial soils are in the azonal order. They are developing in transported and recently deposited alluvium that has been modified little or not at all by the soil-forming processes. They lack genetically related horizons and strongly reflect the characteristics of the soils from which they were derived.

The Ennis, Huntington, Pope, Philo, and Stendal soils represent the Alluvial great soil group in Gordon County. They occur on first bottoms, in depressions, in sinks, and along drainageways.

The well-drained Ennis and Huntington soils occur in level areas and depressions on the uplands and at the head of small drainageways. They are developing in local alluvium washed from soils underlain by limestone and, to a minor extent, by sandstone and shale.

The well drained Pope and moderately well drained Philo soils occur along stream flood plains and are subject to occasional overflow. They are developing in general alluvium washed from soils underlain by sandstone and shale and, to a minor extent, by slate.

The Stendal soils show evidence of gleying and are considered to be grading toward Low-Humic Gley soils. They occur on stream flood plains and are subject to frequent overflow. They are developing in recent alluvium washed from soils underlain by sandstone and shale and, to a minor extent, by cherty limestone.

Following is a detailed profile description of a representative soil of each soil series belonging to the Alluvial great soil group.

Ennis silt loam, local alluvium, 0.6 mile east of New Echota Methodist Church.

Ap—0 to 7 inches, light olive-brown (2.5Y 5/4) silt loam; weak, very fine, granular structure; friable; few fine roots; very strongly acid; clear, smooth boundary.

AC—7 to 20 inches, light olive-brown (2.5Y 5/4) silt loam; weak, medium, granular structure; friable; many small pores; very strongly acid; abrupt, smooth boundary.

Ab—20 to 26 inches, dark grayish-brown (2.5Y 4/2) silt loam; weak, fine, granular structure; friable; very strongly acid; abrupt, smooth boundary.

B2b—26 to 45 inches, light yellowish-brown (2.5Y 6/4) silty clay loam; weak, fine, subangular blocky structure; friable; few small chert fragments; very strongly acid; gradual, smooth boundary.

B3b—45 to 50 inches +, pale-olive (5Y 6/3) silty clay loam; common, fine, distinct, gray (N 6/0) and brownish-yellow (10YR 6/6) mottles; weak, fine, subangular blocky structure; friable; very strongly acid.

Huntington silt loam, acid variant, local alluvium, 0.4 mile south of railroad and State Highway No. 143 crossing.

Ap—0 to 10 inches, dark-brown (7.5YR 4/4) silt loam; weak, fine, granular structure; friable when moist, sticky when wet; few fine roots; very strongly acid; abrupt, smooth boundary.

A1—10 to 24 inches, dark reddish-brown (5YR 3/4) silt loam; weak, fine, granular structure; friable when moist, sticky when wet; few fine roots; very strongly acid; clear, smooth boundary.

Ab—24 to 31 inches, dark-brown (7.5YR 3/2) silt loam; weak, fine, granular structure; very friable when moist, slightly sticky when wet; few dead roots; many fine pores; few small black concretions; very strongly acid; clear, smooth boundary.

Bb—31 to 50 inches +, yellowish-red (5YR 4/6) silty clay loam; weak, fine, subangular blocky structure; friable when moist, very sticky when wet; few fine pores and few small chert and sandstone fragments; few small black concretions; very strongly acid.

Philo silt loam, from an area of Stendal-Philo silt loams, on Salacoa Creek, 1.5 miles northwest of Fairmount.

Ap—0 to 6 inches, brown to dark-brown (10YR 4/3) silt loam; weak, very fine, granular structure; very friable; many fine roots; mildly alkaline; abrupt, smooth boundary.

C1—6 to 12 inches, dark yellowish-brown (10YR 4/4) silt loam; weak, very fine, granular structure; very friable; many fine roots; slightly acid; clear, smooth boundary.

C2—12 to 32 inches, brown to dark-brown (10YR 4/3) silt loam; few, fine, faint, light olive-brown (2.5Y 5/4) mottles; weak, very fine, granular structure; very friable when moist; hard when dry; many fine pores; strongly acid; clear, smooth boundary.

C3—32 to 45 inches, very dark grayish-brown (10YR 3/2) silt loam; common, fine, distinct, olive-gray (5Y 5/2) mottles; weak, fine, granular structure; very friable when moist, hard when dry; strongly acid; clear, smooth boundary.

C4—45 to 52 inches +, olive-brown (2.5Y 4/4) silt loam; common, medium, distinct, olive-gray (5Y 5/2) mottles; weak, fine, granular structure; friable when moist, hard when dry; very strongly acid.

Pope fine sandy loam, 2 miles south of Oostanaula School, on west bank of Oostanaula River.

Ap—0 to 8 inches, dark yellowish-brown (10YR 4/4) fine sandy loam; friable when moist; weak, fine, granular structure; many small mica flakes; strongly acid; abrupt, smooth boundary.

C—8 to 50 inches +, yellowish-brown (10YR 5/4 to 5/6) fine sandy loam; friable when moist; massive; many small mica flakes; very strongly acid.

Stendal silt loam, 2.75 miles southeast of Antioch Baptist Church.

Ap—0 to 8 inches, brown (10YR 5/3) silt loam; weak, fine, granular structure; friable; few fine roots; very strongly acid; abrupt, smooth boundary.

C1—8 to 15 inches, yellowish-brown (10YR 5/4) fine sandy loam; few, fine, distinct, gray (5Y 5/1) and pale-olive (5Y 6/4) mottles; friable; few fine roots; very strongly acid; clear, wavy boundary.
C2—15 to 36 inches, grayish-brown (2.5Y 5/2) silt loam; many, fine, distinct dark-brown (10YR 4/3) and gray (5Y 5/1) mottles; weak, fine, granular structure; friable; few fine roots; very strongly acid; abrupt, smooth boundary.
C3—36 to 46 inches, light olive-brown (2.5Y 5/6) fine sandy loam; many, fine, distinct, gray (5Y 6/1) mottles; weak, fine, granular structure; very friable; few small concretions; few chert and sandstone fragments; very strongly acid; clear, wavy boundary.
C4—46 to 50 inches +, light olive-brown (2.5Y 5/6) fine sandy loam; many, medium, distinct, gray (5Y 6/1) mottles; weak, fine, granular structure; very friable; common small concretions; few chert and sandstone fragments; very strongly acid.

Regosols

Regosols are azonal soils in which few or no clearly expressed soil characteristics have developed. They form in deep, unconsolidated mineral deposits.

In Gordon County, the soils of the Bodine series are members of the Regosol great soil group. These soils are developing in deep beds of cherty limestone material under a deciduous forest, and they are very strongly acid. They have a thin A1 horizon over a bleached A2 horizon. The B2 horizon is light silty clay loam and has weak, fine, subangular blocky structure. Both the A and B horizons are very stony and cherty. Chert makes up 35 percent of the A2 horizon and 95 percent of the B2 horizon, by volume.

A detailed description of a profile of a representative Bodine soil follows.

Bodine very stony silt loam, 25 to 60 percent slopes, 0.4 mile south of Old Sugar Valley Baptist Church, on Baugh Mountain.

O1—½ inch to 0, black (10YR 2/1) decomposed organic matter.
A1—0 to 2 inches, very dark gray (5Y 3/1) very stony silt loam; many fragments of stone-sized chert on surface; weak, very fine, granular structure; friable when moist, slightly sticky when wet; many fine roots; 75 percent chert, by volume; extremely acid; abrupt, smooth boundary.
A2—2 to 9 inches, grayish-brown (2.5Y 5/2) very stony silt loam; weak, fine, granular structure; slightly sticky; friable; slightly hard; many fine roots; 35 percent chert, by volume; very strongly acid; clear, wavy boundary.
B1—9 to 15 inches, pale-yellow (2.5Y 7/4) very stony silt loam; weak, fine, subangular blocky to granular structure; friable; slightly hard; few fine roots; 50 percent chert, by volume; very strongly acid; clear, wavy boundary.
B21—15 to 24 inches, very pale brown (10YR 7/4) very cherty light silty clay loam; weak, fine, subangular blocky structure; friable; 85 to 90 percent chert, by volume; 2 percent of ped surfaces consists of small pores; very strongly acid; clear, wavy boundary.
B22—24 to 30 inches +, light yellowish-brown (10YR 6/4) very cherty to stony light silty clay loam; weak, fine, subangular blocky structure; sticky; firm; very hard; 95 percent chert and stones, by volume; very strongly acid.

Lithosols

Lithosols are in the azonal order. They have no clearly expressed soil morphology and consist of a mass of freshly and imperfectly weathered hard rock or hard rock fragments (*8*). They form mostly on steep slopes where there is ample moisture, but much of the soil material is washed away as fast as it forms.

The Klinesville, Montevallo, Ramsey, and Steekee soils are classified as Lithosols in this county, but all of these soils have some characteristics of Red-Yellow Podzolic soils. The Steekee soils are classified as grading to Red-Yellow Podzolic soils because of their dark reddish-brown stony sandy clay loam B horizon.

The Klinesville and Montevallo soils developed chiefly in material weathered from acid shale, but in places the Montevallo soils overlie slate. The Ramsey soils developed mainly in material weathered from sandstone and, to a minor extent, from sandy shale. The Steekee soils formed in residuum weathered from acid sandstone. All of these soils have a thin, weakly developed color B horizon or a textural B horizon.

These soils are similar in depth and in profile development. Their differences are principally the result of differences in parent rock.

Following is a detailed profile description of a representative soil of each soil series belonging to the Lithosol great soil group.

Klinesville shaly silt loam, 25 to 60 percent slopes, 1.7 miles west of Ranger, on dirt road.

O2—½ inch to 0, partially decayed leaves; twigs, mostly fibrous; few fine roots.
A1—0 to 1 inch, very dark grayish-brown (10YR 3/2 to 2/2) shaly silt loam; weak, very fine, granular structure; very friable; many fine roots; about 75 percent shale, by volume; strongly acid; abrupt, smooth boundary.
A2—1 inch to 5 inches, dark reddish-gray (5YR 4/2) shaly silt loam; weak, fine, granular structure; friable; many fine roots; about 50 percent shale, by volume; very strongly acid; clear, smooth boundary.
B—5 to 11 inches, reddish-brown (5YR 5/4) shaly silty clay loam; weak, fine, granular structure to weak, very fine, subangular blocky structure; friable when moist, slightly sticky when wet; about 70 percent shale, by volume; no clay films; layer of roots in boundary between this horizon and the A2 horizon; very strongly acid; clear, irregular boundary.
C—11 to 16 inches +, red (7.5R 4/6) shale; very thin coating of silty clay loam on shale fragments; very strongly acid.

Montevallo shaly silt loam, from an area of Montevallo-Klinesville shaly silt loams, 15 to 25 percent slopes, 1.5 miles south-southeast of junction of Salacoa and Pine Log Creeks.

A—0 to 5 inches, brown (10YR 5/3) shaly silt loam; weak, fine, granular structure; friable when moist; 50 percent shale fragments, by volume; many fine and medium roots; very strongly acid; abrupt, wavy boundary.
B—5 to 10 inches, yellowish-brown (10YR 5/8) shaly silty clay loam; weak, fine, subangular blocky structure; friable when moist; few fine and medium roots; 50 to 60 percent shale, by volume; very strongly acid; abrupt, irregular boundary.
C—10 to 60 inches +, gray, olive-gray, olive-brown, and reddish-brown shale.

Montevallo slaty silt loam, 60 to 85 percent slopes, 0.5 mile east of U.S. Highway No. 411, and 0.45 mile north of Bartow County line.

A1—0 to 2 inches, very dark grayish-brown (10YR 3/2) slaty silt loam; weak, fine, granular structure; very friable; very strongly acid.
A3—2 to 9 inches, dark yellowish-brown (10YR 4/4) slaty silt loam; weak, fine, granular structure; very friable; 35 percent slate fragments, by volume; very strongly acid; clear, irregular boundary.
B—9 to 16 inches, dark yellowish-brown (10YR 4/4) very flaggy silt loam; weak, medium and fine, subangular blocky structure; very friable; very strongly acid; 50 to

70 percent slate fragments, by volume; abrupt, irregular boundary.
R—16 inches +, very dark gray (N 3/0) slate.

Ramsey gravelly fine sandy loam, from an area of Lehew-Ramsey gravelly fine sandy loams, 15 to 25 percent slopes, 1.1 miles west of Northwest Georgia Experiment Station.

Ap—0 to 5 inches, brown (10YR 5/3) gravelly fine sandy loam; weak, fine, granular structure; very friable; many fine roots; very strongly acid; abrupt, wavy boundary.
B—5 to 10 inches, yellowish-brown (10YR 5/4) gravelly loam; weak, fine, subangular blocky structure; friable; few fine roots; 20 to 25 percent sandstone and shale fragments; very strongly acid; abrupt, wavy boundary.
C—10 to 40 inches +, slightly weathered brownish-yellow (10YR 6/8) and light-gray (2.5Y 7/2) sandstone.

Steekee stony fine sandy loam, 25 to 60 percent slopes, 4 miles west of Sugar Valley and 100 yards east of top of Horn Mountain.

A1—0 to 2 inches, dark reddish-brown (5YR 3/2) stony fine sandy loam; weak, fine, granular structure; friable when moist; 20 percent sandstone fragments; strongly acid; abrupt, wavy boundary.
A2—2 to 8 inches, dark reddish-brown (5YR 3/3) stony fine sandy loam; weak, fine, granular structure; friable when moist; 15 percent sandstone fragments; very strongly acid; clear, wavy boundary.
B—8 to 24 inches, dark reddish-brown (2.5YR 3/4) stony sandy clay loam; moderate, fine, subangular blocky structure; firm when moist; 25 percent sandstone fragments; few large stones; very strongly acid; abrupt, irregular boundary.
R—24 inches +, weak-red (10R 4/3) and white (5Y 8/1) sandstone; weak red is major color.

Additional Facts About the County

This section tells about the organization, settlement, and population of Gordon County and gives information about transportation, industry, and community facilities. The last part gives some facts about agriculture in the county.

Organization, Settlement, and Population

Gordon County was established by an act of the Georgia State Legislature on February 13, 1850 and was enlarged in 1852. The Cherokee Indians occupied the area until about 1839, when white settlers from South Carolina, Tennessee, and Georgia claimed the land under the Cherokee Land Lottery. The first white settlers cleared large tracts along the rivers. As the population increased, many areas that were too steep for cultivated crops were cleared, but most of these areas have reverted to forest.

Some of the earliest agricultural experimental work in Georgia was undertaken by Richard Peters, who in 1847 bought 1,500 acres of land near the center of Gordon County. His experiments included raising different breeds of sheep, goats, and cattle in order to select the best breeds for the northern part of Georgia; growing sorghum for use as forage and for syrup; importing and testing new varieties of grasses and legumes; and experimenting with various kinds of fruit.

The 1960 census showed the population of Gordon County to be 19,228. Calhoun, the county seat and largest town, had a population of 3,587. About 75 percent of the people in the county live in the rural areas.

Transportation

Gordon County is served by two railroads, the Louisville and Nashville Railroad and the Southern Railway. The Louisville and Nashville Railroad operates two main lines in the county. One serves Calhoun directly; the other serves the eastern part of the county. The Southern Railway serves the western part. These are all north-south routes. Passenger service and parcel service are provided daily by several buses, and there are 17 motor freight lines in the county. The nearest commercial air service is at Rome, Ga., which is about 22 miles south-southwest of Calhoun. U.S. Highways 41 and 411 extend through the county in a north-south direction. In the future, Interstate Highway No. 75 will roughly parallel U.S. 41 and pass about 2 miles east of Calhoun. State Highways 3, 53, 143, 156, and 225 also serve Gordon County.

Industry

Manufacturing is not diversified in Gordon County. In January 1962, there were 2,910 persons employed in industry. Of these, 2,740 were employed in textile mills and garment factories. Most workers are employed by seven firms, but there are many small textile mills and garment factories scattered throughout the county. About 700 workers commute from 23 to 70 miles daily to jobs outside the county.

Markets are available in the county for poultry products, pulpwood, and lumber, and the county also has a glassrock products factory and a meat-processing plant. There are small deposits of iron, bauxite, and marble, but these deposits are not mined. Numerous industrial and commercial sites are available in the county.

Agriculture

Before the arrival of white settlers, the Cherokee Indians lived in small, permanent houses and farmed small patches of land, generally on stream terraces. They grew corn and tobacco. The first white settlers cleared the well-drained soils on flood plains and stream terraces. The need for land on which to grow cotton was responsible for the clearing of large acreages on the uplands.

The acreage in farms increased steadily from 1839 and reached a peak of 204,018 acres in 1935. Since then the acreage in farms has gradually decreased. In 1959 there were only 137,459 acres in farms.

The number of farms in the county has decreased from 2,632 in 1935 to 1,222 in 1959. The 1959 census of agriculture shows the average size of farms to be 112.5 acres. About 60 percent of the farms are between 10 and 99 acres in size, and about 33 percent between 100 and 1,000 acres. There are 6 farms larger than 1,000 acres.

Since large-scale farming began in Gordon County, corn and cotton have been the principal crops. Cotton has been the most important cash crop. Most of the corn is used on the farm. In 1929 there were 16,487 acres of corn and 30,252 acres of cotton; in 1954, there were 14,676 acres of corn and 11,057 acres of cotton; in 1959, 12,694 acres of corn and 8,341 acres of cotton. The total yields of corn and cotton have remained about the same because yields per acre have increased. Small acreages

are used for wheat, oats, sorghum, hay crops, soybeans, and grain sorghum. Vegetables are grown mostly for home use.

Growing of row crops has been the chief farm enterprise since Gordon County was settled. However, the acreage used for row crops decreased significantly between 1949 and 1959, whereas the acreage in pasture and forest increased. Row crops are now planted on the most fertile soils, which are mainly on flood plains and on the well-drained uplands and stream terraces.

Before 1945, pastures were located for the convenience of the farm operator. The suitability of the soils for pasture was seldom considered. If yields of a row crop became very low, the field was fenced and used for pasture. In 1959 there were 26,623 acres in pasture. About half of this acreage is unimproved, but each year an increasing acreage is being fertilized and seeded to adapted grasses and legumes. The meat-processing plant in Calhoun, the low farm income, and the decrease in cotton acreage are factors contributing to the increase in pasture acreage.

The number of cattle in the county increased from 6,606 in 1950 to 11,362 in 1959. The increase was mostly in beef cattle. Horses and mules have steadily decreased in number since 1935, and there were only 652 in 1959. This decrease reflects an increase in the use of power machinery. The number of tractors in the county increased from 815 in 1954 to 908 in 1959.

The number of hogs in the county increased from 3,801 in 1950 to 9,118 in 1959. A rapid increase in the number of hogs is necessary to help supply the 600 needed daily at the meat-processing plant.

Poultry has been important to the economy of the county since 1949. In 1959 about 6,078,018 broilers were sold. Since 1959 low prices have discouraged many producers, and the number of broilers sold has decreased greatly. In 1959 about 100,000 hens produced 1,439,693 dozen eggs. A small number of turkeys, ducks, and geese are raised on a few farms.

About 130,600 acres of the county is forested. In 1953 it was estimated that there were 875,000 cords of timber in the county. By 1961 this volume had increased to 1,006,000 cords. The value of timber products sold should increase from year to year as better management is practiced.

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Glossary

Alluvium. Soil material, such as sand, silt, or clay, that has been deposited on land by streams.

Available moisture capacity. The capacity of a soil to hold water in a form available to plants. Amount of moisture held in soil between field capacity, or about one-third atmosphere of tension, and the wilting coefficient, or about 15 atmospheres of tension.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Catena. A sequence, or "chain," of soils on a landscape, developed from one kind of parent material but having different characteristics because of differences in relief and drainage.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Claypan. A compact, slowly permeable soil horizon that contains more clay than the horizon above and below it. A claypan commonly is hard when dry and is plastic or stiff when wet.

Concretions. Grains, pellets, or nodules of various sizes, shapes, and colors consisting of concentrations of compounds or of soil grains cemented together. The composition of some concretions is unlike that of the surrounding soil. Calcium carbonate and iron oxide are examples of material commonly found in concretions.

Consistence, soil. The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are—

Loose.—Noncoherent; will not hold together in a mass.

Friable.—When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.

Firm.—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

Plastic.—When wet, readily deformed by moderate pressure but can be pressed into a lump; will form a "wire" when rolled between thumb and forefinger.

Sticky.—When wet, adheres to other material, and tends to stretch somewhat and pull apart, rather than to pull free from other material.

Hard.—When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.

Soft.—When dry, breaks into powder or individual grains under very slight pressure.

Cemented.—Hard and brittle; little affected by moistening.

Contour farming. Plowing, cultivating, planting, and harvesting in rows that are at right angles to the natural direction of the slope or that are parallel to terrace grade.

Drainage, surface. Runoff, or surface flow, of water from an area.

Eluviation. The movement of material from one place to another within the soil, either in true solution or in colloidal suspension. Soil horizons that have lost material through eluviation are said to be eluvial; those that have received material are illuvial.

Erosion. The wearing away of the land surface by wind, running water, and other geological agents.

First bottom. The normal flood plain of a stream, subject to frequent or occasional flooding.

Flood plain. Nearly level land, consisting of stream sediment, that borders a stream and is subject to flooding unless protected artificially.

Fragipan. A loamy, brittle, subsurface horizon that is very low in organic matter and clay but is rich in silt or very fine sand. The layer is seemingly cemented when dry, has a hard or very hard consistence, and has a high bulk density in comparison with the horizon or horizons above it. When moist, the fragipan tends to rupture suddenly if pressure is applied, rather than to deform slowly. The layer is generally mottled, is slowly or very slowly permeable to water, and has few or many bleached fracture planes that form polygons. Fragipans are a few inches to several feet thick; they generally occur below the B horizon, 15 to 40 inches below the surface.

Genesis, soil. The manner in which a soil originated, with special reference to the processes responsible for the development of the solum, or true soil, from the unconsolidated parent material.

Horizon, soil. A layer of soil, approximately parallel to the surface, that has distinct characteristics produced by soil-forming processes. These are the major soil horizons:

A horizon.—The mineral horizon at the surface. It has an accumulation of organic matter, has been leached of soluble minerals and clay, or shows the effects of both.

B horizon.—The horizon in which clay minerals or other material has accumulated, that has developed a characteristic blocky or prismatic structure, or that shows the effects of both processes.

C horizon.—The unconsolidated material immediately under the true soil. In chemical, physical, and mineral composition it is presumed to be similar to the material from which at least part of the overlying solum has developed.

Illuviation. The accumulation of material in a soil horizon through the deposition of suspended material and organic matter removed from horizons above. Since part of the fine clay in the B horizon (or subsoil) of many soils has moved into the B horizon from the A horizon above, the B horizon is called an illuvial horizon.

Infiltration. The downward entry of water into the immediate surface of the soil, as contrasted with percolation, which is the movement of water through the soil.

Leaching. The removal of soluble materials from soils or other material by percolating water.

Morphology, soil. The makeup of the soil, including the texture, structure, consistence, color, and other physical, mineralogical, and biological properties of the various horizons of the soil profile.

Mottled. Irregularly marked with spots of different colors that vary in number and size. Mottling in soils generally indicates poor aeration and lack of drainage. Descriptive terms are as follows: Abundance—*few, common,* and *many;* size—*fine, medium,* and *coarse;* and contrast—*faint, distinct,* and *prominent.* The size measurements are these: *fine,* less than 5 millimeters (about 0.2 inch) in diameter along the greatest dimension; *medium,* ranging from 5 millimeters to 15 millimeters (about 0.2 to 0.6 inch) in diameter along the greatest dimension; and *coarse,* more than 15 millimeters (about 0.6 inch) in diameter along the greatest dimension.

Organic matter. A general term for plant and animal material, in or on the soil, in all stages of decomposition. Readily decomposed organic matter is often distinguished from the more stable forms that are past the stage of rapid decomposition.

Parent material (soil). The horizon of weathered rock or partly weathered soil material from which soil has formed; horizon C in the soil profile.

Permeability. The quality of a soil horizon that enables water or air to move through it. Terms used to describe permeability are as follows: *very slow, slow, moderately slow, moderate, moderately rapid, rapid,* and *very rapid.*

Plow layer. The soil ordinarily moved in tillage; equivalent to surface soil.

Profile, soil. A vertical section of the soil through all its horizons and extending into the parent material.

Reaction, soil. The degree of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is precisely neutral in reaction because it is neither acid nor alkaline. An acid, or "sour," soil is one that gives an acid reaction; an alkaline soil is one that is alkaline in reaction. In words, the degree of acidity or alkalinity are expressed thus:

	pH		*pH*
Extremely acid	Below 4.5	Mildly alkaline	7.4 to 7.8
Very strongly acid	4.5 to 5.0	Moderately alkaline	7.9 to 8.4
Strongly acid	5.1 to 5.5	Strongly alkaline	8.5 to 9.0
Medium acid	5.6 to 6.0	Very strongly alkaline	9.1 and higher
Slightly acid	6.1 to 6.5		
Neutral	6.6 to 7.3		

Residual material. Unconsolidated, partly weathered mineral material that accumulates over disintegrating solid rock. Residual material is not soil but is frequently the material in which a soil has formed.

Runoff (hydraulics). The part of the precipitation upon a drainage area that is discharged from the area in stream channels. The water that flows off the land surface without sinking in is called surface runoff; that which enters the ground before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 to 2.0 millimeters in diameter. Most sand grains consist of quartz, but sand may be of any mineral composition. As a textural class, soil material that is 85 percent or more sand and not more than 10 percent clay.

Sedimentary rock. A rock composed of particles deposited from suspension in water. The chief sedimentary rocks are conglomerate, from gravel; sandstone, from sand; shale, from clay; and limestone, from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sands have been consolidated into sandstone.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a textural class, soil material that is 80 percent or more silt and less than 12 percent clay.

Soil separates. Mineral particles, less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes of separates recognized in the United States are as follows: *Very coarse sand* (2.0 to 1.0 millimeter); *coarse sand* (1.0 to 0.5 millimeter); *medium sand* (0.5 to 0.25 millimeter); *fine sand* (0.25 to 0.10 millimeter); *very fine sand* (0.10 to 0.05 millimeter); *silt* (0.05 to 0.002 millimeter); and *clay* (less than 0.002 millimeter). The separates recognized by the International Society of Soil Science are as follows: I (2.0 millimeters to 0.2 millimeter); II (0.2 to 0.02 millimeter); III (0.02 to 0.002 millimeter); IV (less than 0.002 millimeter).

Solum. The upper part of a soil profile, above the parent material, in which the processes of soil formation are active. The solum in mature soil includes the A and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying material. The living roots and other plant and animal life characteristic of the soil are largely confined to the solum.

Stripcropping. Growing crops in a systematic arrangement of strips, or bands, to serve as vegetative barriers to wind and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or clusters that are separated from adjoining aggregates and have properties unlike those of an equal mass of unaggregated primary soil particles. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular. Structureless* soils are (1) *single grain* (each grain by itself, as in dune sand) or (2) *massive* (the particles adhering together without any regular cleavage, as in many claypans and hardpans).

Subsoil. Technically, the B horizon; roughly, the part of the profile below plow depth.

Substratum. Any layer lying beneath the solum, or true soil; the C or D horizon.

Surface layer. A term used in nontechnical soil descriptions for one or more layers above the subsoil. Includes A horizon and part of B horizon; has no depth limit.

Terrace (geological). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea. Stream terraces are frequently called second bottoms, as contrasted to flood plains, and are seldom subject to overflow. Marine terraces were deposited by the sea and are generally wide.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay.* The sand, loamy sand, and sandy loam classes may be further divided by specifying "course," "fine," or "very fine."

Topsoil. A presumed fertile soil or soil material, ordinarily rich in organic matter, used to topdress roadbanks, lawns, and gardens.

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GUIDE TO MAPPING UNITS

[See table 6, page 10, for approximate acreage and proportionate extent of soils; table 7, page 68, for estimated average acre yields of the principal crops; tables 11, 12, and 13, on pages 90, 96, and 130, for information significant to soil engineering]

Map symbol	Mapping unit	Page	Capability units		Woodland groups		Wildlife groups	
			Symbol	Page	Number	Page	Number	Page
AaB2	Allen fine sandy loam, 2 to 6 percent slopes, eroded---	12	IIe-3	58	1	78	1	83
AaC2	Allen fine sandy loam, 6 to 10 percent slopes, eroded--	13	IIIe-3	60	1	78	1	83
AaD	Allen fine sandy loam, 10 to 15 percent slopes---------	13	IVe-1	63	1	78	2	83
AaD2	Allen fine sandy loam, 10 to 15 percent slopes, eroded-	13	IVe-1	63	1	78	2	83
AaE	Allen fine sandy loam, 15 to 25 percent slopes---------	12	VIe-1	66	1	78	2	83
AbC3	Allen fine sandy clay loam, 6 to 10 percent slopes, severely eroded----------	13	IVe-1	63	2	79	3	83
AbE3	Allen fine sandy clay loam, 15 to 25 percent slopes, severely eroded----------	13	VIe-1	66	2	79	4	85
Atk	Atkins silt loam----------	14	IVw-3	65	8	81	11	87
AyF	Allen stony fine sandy loam, 25 to 60 percent slopes---	13	VIIs-1	67	5	80	8	86
BzE	Bodine very stony silt loam, 15 to 25 percent slopes---	15	VIIs-1	67	5	80	8	86
BzF	Bodine very stony silt loam, 25 to 60 percent slopes---	14	VIIs-1	67	5	80	8	86
CBA	Captina silt loam, 0 to 2 percent slopes----------	15	IIw-2	59	7	81	5	86
CDB	Christian fine sandy loam, 2 to 6 percent slopes-------	15	IIe-1	56	1	78	1	83
CDC	Christian fine sandy loam, 6 to 10 percent slopes------	16	IIIe-1	59	1	78	1	83
CDD	Christian fine sandy loam, 10 to 15 percent slopes-----	16	IVe-1	63	1	78	2	83
CDE	Christian fine sandy loam, 15 to 25 percent slopes-----	16	VIe-1	66	1	78	2	83
CEB3	Christian fine sandy clay loam, 2 to 6 percent slopes, severely eroded----------	16	IIIe-1	59	2	79	3	83
CEC3	Christian fine sandy clay loam, 6 to 10 percent slopes, severely eroded----------	16	IVe-1	63	2	79	3	83
CED3	Christian fine sandy clay loam, 10 to 15 percent slopes, severely eroded----------	16	VIe-1	66	2	79	4	85
CEE3	Christian fine sandy clay loam, 15 to 25 percent slopes, severely eroded----------	17	VIe-1	66	2	79	4	85
CHB	Clarksville cherty silt loam, 2 to 6 percent slopes----	17	IIe-2	57	3	80	1	83
CHC2	Clarksville cherty silt loam, 6 to 10 percent slopes, eroded----------	17	IIIe-2	60	3	80	1	83
CHD	Clarksville cherty silt loam, 10 to 15 percent slopes--	17	IVe-2	64	3	80	2	83
CHE	Clarksville cherty silt loam, 15 to 25 percent slopes--	18	VIe-1	66	3	80	2	83
CHE2	Clarksville cherty silt loam, 15 to 25 percent slopes, eroded----------	18	VIe-1	66	3	80	2	83
CID3	Clarksville cherty silty clay loam, 10 to 15 percent slopes, severely eroded----------	18	VIe-1	66	4	80	4	85
CME	Colbert very rocky silt loam, 15 to 25 percent slopes--	18	VIIs-1	67	10	81	8	86
CRA	Conasauga silt loam, 0 to 2 percent slopes----------	19	IIIw-3	62	9	81	5	86
CRB	Conasauga silt loam, 2 to 6 percent slopes----------	19	IIIe-4	61	9	81	5	86
CRB2	Conasauga silt loam, 2 to 6 percent slopes, eroded-----	19	IIIe-4	61	9	81	5	86
CSB	Conasauga shaly complex, 2 to 6 percent slopes---------	19	IIIe-6	61	9	81	6	86
CSB2	Conasauga shaly complex, 2 to 6 percent slopes, eroded-	20	IIIe-6	61	9	81	6	86
CSC2	Conasauga shaly complex, 6 to 10 percent slopes, eroded----------	20	IVe-3	64	9	81	6	86
CSC3	Conasauga shaly complex, 6 to 10 percent slopes, severely eroded----------	20	VIe-3	66	9	81	6	86
CSD	Conasauga shaly complex, 10 to 15 percent slopes-------	20	VIe-3	66	9	81	6	86
CUB	Cumberland loam, 2 to 6 percent slopes----------	21	IIe-1	56	1	78	1	83
CUC2	Cumberland loam, 6 to 10 percent slopes, eroded--------	21	IIIe-1	59	1	78	1	83
CVB3	Cumberland silty clay loam, 2 to 6 percent slopes, severely eroded----------	21	IIIe-1	59	2	79	3	83
CVC3	Cumberland silty clay loam, 6 to 10 percent slopes, severely eroded----------	21	IVe-1	63	2	79	3	83
DdB2	Dewey silt loam, 2 to 6 percent slopes, eroded---------	22	IIe-1	56	1	78	1	83
DdC2	Dewey silt loam, 6 to 10 percent slopes, eroded--------	22	IIIe-1	59	1	78	1	83
DeC3	Dewey silty clay loam, 6 to 10 percent slopes, severely eroded----------	22	IVe-1	63	2	79	3	83
DeD3	Dewey silty clay loam, 10 to 15 percent slopes, severely eroded----------	23	VIe-1	66	2	79	4	85

GUIDE TO MAPPING UNITS--CONT'D.

Map symbol	Mapping unit	Page	Capability units: Symbol	Page	Woodland groups: Number	Page	Wildlife groups: Number	Page
DeE3	Dewey silty clay loam, 15 to 25 percent slopes, severely eroded	23	VIe-1	66	2	79	4	85
EdA	Etowah loam, 0 to 2 percent slopes	23	I-2	55	1	78	1	83
EdB	Etowah loam, 2 to 6 percent slopes	24	IIe-3	58	1	78	1	83
EdC	Etowah loam, 6 to 10 percent slopes	24	IIIe-3	60	1	78	1	83
Ens	Ennis silt loam, local alluvium	23	I-3	56	6	80	9	87
FfB2	Farragut silt loam, 2 to 6 percent slopes, eroded	24	IIe-1	56	1	78	1	83
FgB3	Farragut silty clay loam, 2 to 6 percent slopes, severely eroded	24	IIIe-1	59	2	79	3	83
FgC3	Farragut silty clay loam, 6 to 10 percent slopes, severely eroded	25	IVe-1	63	2	79	3	83
FgD3	Farragut silty clay loam, 10 to 15 percent slopes, severely eroded	25	VIe-1	66	2	79	4	85
FmB	Fullerton cherty silt loam, 2 to 6 percent slopes	25	IIe-2	57	1	78	1	83
FmC	Fullerton cherty silt loam, 6 to 10 percent slopes	26	IIIe-2	60	1	78	1	83
FmD	Fullerton cherty silt loam, 10 to 15 percent slopes	26	IVe-2	64	1	78	2	83
FmE	Fullerton cherty silt loam, 15 to 25 percent slopes	25	VIe-1	66	1	78	2	83
FmF	Fullerton cherty silt loam, 25 to 60 percent slopes	26	VIIe-1	67	1	78	2	83
FnC3	Fullerton cherty silty clay loam, 6 to 10 percent slopes, severely eroded	26	IVe-2	64	2	79	3	83
FnD3	Fullerton cherty silty clay loam, 10 to 15 percent slopes, severely eroded	27	VIe-1	66	2	79	4	85
FnE3	Fullerton cherty silty clay loam, 15 to 25 percent slopes, severely eroded	27	VIIe-1	67	2	79	4	85
GDF	Gilpin-Dekalb stony complex, 25 to 60 percent slopes	27	VIIs-1	67	5	80	8	86
Gul	Gullied land	27	VIIe-4	67	--	--	4	85
Gut	Guthrie silt loam, clay subsoil variant	28	IVw-2	65	8	81	11	87
HGB	Hartsells fine sandy loam, 2 to 6 percent slopes	29	IIe-3	58	1	78	1	83
HGC	Hartsells fine sandy loam, 6 to 10 percent slopes	29	IIIe-3	60	1	78	1	83
HXA	Huntington silt loam, acid variant, local alluvium	29	I-3	56	6	80	9	87
JaC	Jefferson gravelly fine sandy loam, 6 to 10 percent slopes	30	IIIe-3	60	1	78	1	83
JaD	Jefferson gravelly fine sandy loam, 10 to 15 percent slopes	30	IVe-1	63	1	78	2	83
JaE	Jefferson gravelly fine sandy loam, 15 to 25 percent slopes	30	VIe-1	66	1	78	2	83
KjD	Klinesville shaly silt loam, 10 to 15 percent slopes	31	VIe-3	66	10	81	7	86
KjE	Klinesville shaly silt loam, 15 to 25 percent slopes	31	VIIe-3	67	10	81	8	86
KjF	Klinesville shaly silt loam, 25 to 60 percent slopes	30	VIIe-3	67	10	81	8	86
LaE	Lehew-Ramsey gravelly fine sandy loams, 15 to 25 percent slopes	34	VIIe-3	67	5	80	8	86
LaF	Lehew-Ramsey gravelly fine sandy loams, 25 to 60 percent slopes	34	VIIe-3	67	5	80	8	86
LbB	Lehew-Dekalb gravelly fine sandy loams, 2 to 6 percent slopes	33	IIIe-6	61	3	80	6	86
LbC	Lehew-Dekalb gravelly fine sandy loams, 6 to 10 percent slopes	33	IVe-3	64	3	80	6	86
LbD	Lehew-Dekalb gravelly fine sandy loams, 10 to 15 percent slopes	33	VIe-3	66	3	80	6	86
Led	Local alluvial land, moderately wet	34	IIw-1	58	7	81	10	87
LhE3	Lehew-Ramsey gravelly fine sandy clay loams, 15 to 25 percent slopes, severely eroded	34	VIIe-3	67	5	80	8	86
LIA	Landisburg cherty silt loam, 0 to 2 percent slopes	31	IIw-2	59	7	81	10	87
LIB	Landisburg cherty silt loam, 2 to 6 percent slopes	31	IIe-2	57	7	81	10	87
LIC	Landisburg cherty silt loam, 6 to 10 percent slopes	32	IIIe-2	60	7	81	5	86
LJA	Leadvale silt loam, 0 to 2 percent slopes	32	IIw-2	59	7	81	5	86
LJB	Leadvale silt loam, 2 to 6 percent slopes	32	IIe-2	57	7	81	5	86
LKB	Locust gravelly fine sandy loam, 2 to 6 percent slopes	35	IIe-2	57	3	80	5	86

GUIDE TO MAPPING UNITS--CONT'D.

Map symbol	Mapping unit	Page	Capability units: Symbol	Page	Woodland groups: Number	Page	Wildlife groups: Number	Page
LLD3	Lehew-Dekalb gravelly fine sandy clay loams, 10 to 15 percent slopes, severely eroded	33	VIIe-3	67	4	80	6	86
MaB	Monongahela fine sandy loam, 2 to 6 percent slopes	36	IIe-2	57	3	80	5	86
MaC	Monongahela fine sandy loam, 6 to 10 percent slopes	36	IIIe-2	60	3	80	5	86
MbB	Monongahela gravelly silt loam, 2 to 6 percent slopes	36	IIe-2	57	3	80	5	86
McC3	Montevallo-Klinesville shaly silt loams, 6 to 10 percent slopes, severely eroded	38	VIe-3	66	10	81	7	86
McD	Montevallo-Klinesville shaly silt loams, 10 to 15 percent slopes	37	VIe-3	66	10	81	7	86
McD3	Montevallo-Klinesville shaly silt loams, 10 to 15 percent slopes, severely eroded	38	VIIe-3	67	10	81	7	86
McE	Montevallo-Klinesville shaly silt loams, 15 to 25 percent slopes	37	VIIe-3	67	10	81	8	86
McE3	Montevallo-Klinesville shaly silt loams, 15 to 25 percent slopes, severely eroded	38	VIIe-3	67	10	81	8	86
McF	Montevallo-Klinesville shaly silt loams, 25 to 60 percent slopes	37	VIIe-3	67	10	81	8	86
MdB	Montevallo shaly silt loam, 2 to 6 percent slopes	37	IIIe-6	61	10	81	7	86
MdC	Montevallo shaly silt loam, 6 to 10 percent slopes	37	IVe-3	64	10	81	7	86
MeB	Muse silt loam, 2 to 6 percent slopes	39	IIe-3	58	1	78	1	83
MeB2	Muse silt loam, 2 to 6 percent slopes, eroded	39	IIe-3	58	1	78	1	83
MeC2	Muse silt loam, 6 to 10 percent slopes, eroded	39	IIIe-3	60	1	78	1	83
Mel	Melvin silt loam	35	IVw-3	65	8	81	11	87
MfF	Montevallo slaty silt loam, 25 to 60 percent slopes	38	VIIs-1	67	5	80	8	86
MfG	Montevallo slaty silt loam, 60 to 85 percent slopes	38	VIIs-1	67	5	80	8	86
NbB	Nolichucky fine sandy loam, 2 to 6 percent slopes	39	IIe-3	58	1	78	1	83
NbC	Nolichucky fine sandy loam, 6 to 10 percent slopes	40	IIIe-3	60	1	78	1	83
NbD2	Nolichucky fine sandy loam, 10 to 15 percent slopes, eroded	40	IVe-1	63	1	78	2	83
Pop	Pope fine sandy loam	41	I-3	56	6	80	9	87
Pos	Pope shaly silt loam, local alluvium	41	I-3	56	6	80	9	87
Pur	Purdy silt loam	41	IVw-3	65	8	81	11	87
RmB	Rarden silt loam, 2 to 6 percent slopes	42	IIIe-4	61	3	80	6	86
RmB2	Rarden silt loam, 2 to 6 percent slopes, eroded	42	IIIe-4	61	3	80	6	86
RmC2	Rarden silt loam, 6 to 10 percent slopes, eroded	42	IVe-5	65	3	80	6	86
RmD2	Rarden silt loam, 10 to 15 percent slopes, eroded	42	VIe-3	66	3	80	6	86
RnC3	Rarden shaly silty clay loam, shallow, 6 to 10 percent slopes, severely eroded	43	VIe-3	66	4	80	6	86
RnD3	Rarden shaly silty clay loam, shallow, 10 to 15 percent slopes, severely eroded	43	VIe-3	66	4	80	6	86
RnE3	Rarden shaly silty clay loam, shallow, 15 to 25 percent slopes, severely eroded	43	VIIe-3	67	4	80	8	86
Rob	Robertsville silt loam, clay subsoil variant	43	IVw-3	65	8	81	11	87
SaA	Sequatchie loam, 0 to 2 percent slopes	44	I-2	55	1	78	1	83
SaB	Sequatchie loam, 2 to 6 percent slopes	45	IIe-3	58	1	78	1	83
SaB2	Sequatchie loam, 2 to 6 percent slopes, eroded	45	IIe-3	58	1	78	1	83
SbB2	Sequoia silt loam, 2 to 6 percent slopes, eroded	45	IIIe-4	61	3	80	1	83
SbC2	Sequoia silt loam, 6 to 10 percent slopes, eroded	45	IVe-5	65	3	80	1	83
ScB3	Sequoia silty clay loam, 2 to 6 percent slopes, severely eroded	46	IVe-5	65	4	80	3	83
ScC3	Sequoia silty clay loam, 6 to 10 percent slopes, severely eroded	46	VIe-3	66	4	80	3	83
ScD3	Sequoia silty clay loam, 10 to 15 percent slopes, severely eroded	46	VIe-3	66	4	80	4	85
SdF	Steekee stony fine sandy loam, 25 to 60 percent slopes	46	VIIe-3	67	10	81	8	86
Spg	Sandy and gravelly land	43	IIw-2	59	7	81	5	86

GUIDE TO MAPPING UNITS--CONT'D.

Map symbol	Mapping unit	Page	Capability units		Woodland groups		Wildlife groups	
			Symbol	Page	Number	Page	Number	Page
Spl	Stendal-Philo silt loams	47	IIw-1	58	7	81	10	87
Stl	Stendal silt loam	47	IIw-1	58	7	81	10	87
TwA	Taft silt loam, 0 to 2 percent slopes	48	IIIw-2	62	7	81	10	87
TxA	Tupelo silt loam, 0 to 2 percent slopes	48	IIIw-3	62	9	81	5	86
TxB2	Tupelo silt loam, 2 to 6 percent slopes, eroded	49	IIIe-4	61	9	81	5	86
TyA	Tyler fine sandy loam, 0 to 2 percent slopes	49	IIIw-2	62	7	81	10	87
TyB	Tyler fine sandy loam, 2 to 6 percent slopes	49	IIIw-2	62	7	81	10	87
WbB2	Waynesboro fine sandy loam, 2 to 6 percent slopes, eroded	50	IIe-3	58	1	78	1	83
WbC2	Waynesboro fine sandy loam, 6 to 10 percent slopes, eroded	50	IIIe-3	60	1	78	1	83
WbD2	Waynesboro fine sandy loam, 10 to 15 percent slopes, eroded	51	IVe-1	63	1	78	2	83
WbE2	Waynesboro fine sandy loam, 15 to 25 percent slopes, eroded	51	VIe-1	66	1	78	2	83
WcC3	Waynesboro fine sandy clay loam, 6 to 10 percent slopes, severely eroded	51	IVe-1	63	2	79	3	83
WcD3	Waynesboro fine sandy clay loam, 10 to 15 percent slopes, severely eroded	51	VIe-1	66	2	79	4	85
WcE3	Waynesboro fine sandy clay loam, 15 to 25 percent slopes, severely eroded	51	VIe-1	66	2	79	4	85
WdA	Whitwell silt loam, 0 to 2 percent slopes	52	I-2	55	7	81	9	87
WdB	Whitwell silt loam, 2 to 6 percent slopes	52	IIe-3	58	7	81	9	87
WfA	Wolftever silt loam, concretionary variant, 0 to 2 percent slopes	53	IIw-2	59	7	81	5	86
WfB	Wolftever silt loam, concretionary variant, 2 to 6 percent slopes	53	IIe-2	57	7	81	5	86
WqA	Whitwell silt loam, moderately wet, 0 to 2 percent slopes	52	IIIw-2	62	7	81	10	87
WqB	Whitwell silt loam, moderately wet, 2 to 6 percent slopes	52	IIIw-2	62	7	81	10	87

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

UNIVERSITY OF GEORGIA, COLLEGE OF AGRICULTURE
AGRICULTURAL EXPERIMENT STATIONS

GENERAL SOIL MAP
GORDON COUNTY, GEORGIA

Scale 1:126720
1 0 1 2 3 Miles

N

WHITFIELD COUNTY
MURRAY COUNTY
WALKER COUNTY
GILMER COUNTY
PICKENS COUNTY
FLOYD COUNTY
BARTOW COUNTY
34°35′
34°25′
84°50′
84°40′
85°00′

Chestnut Mountain
Horn Mountain
Taylor Mountain
CHATTAHOOCHEE NATIONAL FOREST
NORTHWEST BRANCH AGRICULTURAL EXPERIMENT STATION

Hill City
Resaca
Sugar Valley
Oostanaula
Reeves
Curryville
Plainville
Lilly Pond
CALHOUN
New Town
Nicholsville
Soapstick
Fidelle
Audubon
Petersburg
Oakman
Ranger
Redbud
Lewis Corner
Hunts Corner
Cash
Farmville
Sonoraville
Fairmount

Conasauga River
Oostanaula River
Coosawattee River
Southern Railway
Louisville and Nashville Railway
Proposed Interstate Highway No. 75

SOIL ASSOCIATIONS

1 Christian-Clarksville-Fullerton association: Well-drained soils of the uplands; underlain by cherty limestone or sandstone

2 Conasauga-Montevallo association: Well-drained to somewhat poorly drained soils of the uplands; underlain by shale or limestone

3 Gilpin-Dekalb-Bodine-Steekee association: Steep, moderately deep soils on mountains

4 Lehew-Ramsey-Montevallo-Klinesville association: Rolling and hilly soils of the uplands; underlain by acid sandstone or shale

5 Montevallo-Klinesville-Rarden association: Shallow, well-drained soils of the rolling and hilly shale ridges

6 Montevallo-Sequoia-Muse association: Shallow to deep soils on shale ridges, on toe slopes, and in draws

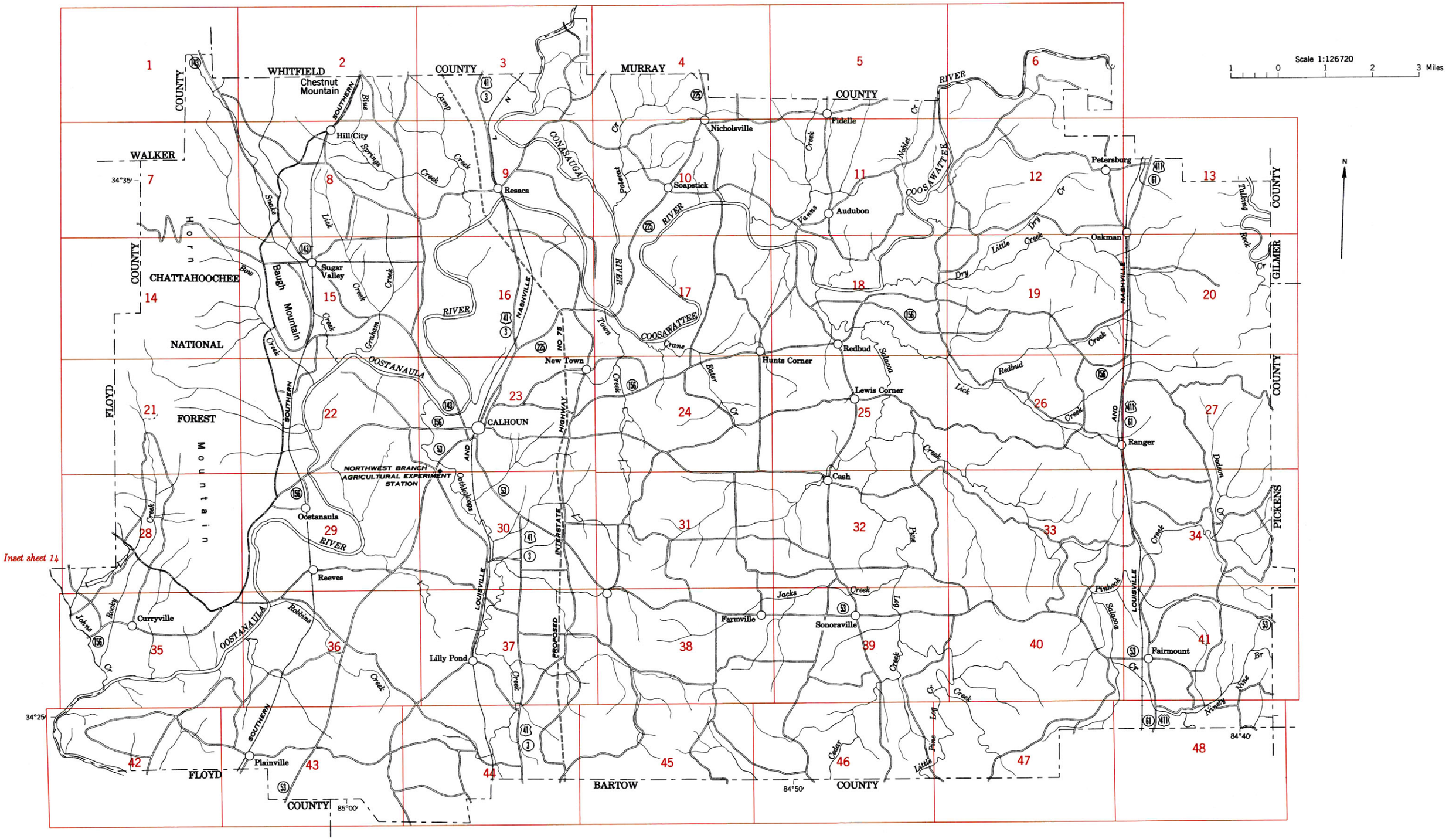
7 Montevallo association: Steep and very steep, shallow soils on mountains

8 Whitwell-Stendal-Philo-Monongahela association: Moderately well drained and somewhat poorly drained soils of the flood plains and low stream terraces

September 1964

INDEX TO MAP SHEETS

GORDON COUNTY, GEORGIA



Inset sheet 14

SOIL LEGEND

The first letter in each symbol is the initial one of the soil name. If the third letter is a capital, it shows the range of slope from A, less than 2 percent, to G, 60 to 85 percent slopes. A number after the slope letter denotes the class of erosion as given in the soil name.

SYMBOL	NAME
AaB2	Allen fine sandy loam, 2 to 6 percent slopes, eroded
AaC2	Allen fine sandy loam, 6 to 10 percent slopes, eroded
AaD	Allen fine sandy loam, 10 to 15 percent slopes
AaD2	Allen fine sandy loam, 10 to 15 percent slopes, eroded
AaE	Allen fine sandy loam, 15 to 25 percent slopes
AbC3	Allen fine sandy clay loam, 6 to 10 percent slopes, severely eroded
AbE3	Allen fine sandy clay loam, 15 to 25 percent slopes, severely eroded
Atk	Atkins silt loam
AyF	Allen stony fine sandy loam, 25 to 60 percent slopes
BzE	Bodine very stony silt loam, 15 to 25 percent slopes
BzF	Bodine very stony silt loam, 25 to 60 percent slopes
CBA	Captina silt loam, 0 to 2 percent slopes
CDB	Christian fine sandy loam, 2 to 6 percent slopes
CDC	Christian fine sandy loam, 6 to 10 percent slopes
CDD	Christian fine sandy loam, 10 to 15 percent slopes
CDE	Christian fine sandy loam, 15 to 25 percent slopes
CEB3	Christian fine sandy clay loam, 2 to 6 percent slopes, severely eroded
CEC3	Christian fine sandy clay loam, 6 to 10 percent slopes, severely eroded
CED3	Christian fine sandy clay loam, 10 to 15 percent slopes, severely eroded
CEE3	Christian fine sandy clay loam, 15 to 25 percent slopes, severely eroded
CHB	Clarksville cherty silt loam, 2 to 6 percent slopes
CHC2	Clarksville cherty silt loam, 6 to 10 percent slopes, eroded
CHD	Clarksville cherty silt loam, 10 to 15 percent slopes
CHE	Clarksville cherty silt loam, 15 to 25 percent slopes
CHE2	Clarksville cherty silt loam, 15 to 25 percent slopes, eroded
CID3	Clarksville cherty silty clay loam, 10 to 15 percent slopes, severely eroded
CME	Colbert very rocky silt loam, 15 to 25 percent slopes
CRA	Conasauga silt loam, 0 to 2 percent slopes
CRB	Conasauga silt loam, 2 to 6 percent slopes
CRB2	Conasauga silt loam, 2 to 6 percent slopes, eroded
CSB	Conasauga shaly complex, 2 to 6 percent slopes
CSB2	Conasauga shaly complex, 2 to 6 percent slopes, eroded
CSC2	Conasauga shaly complex, 6 to 10 percent slopes, eroded
CSC3	Conasauga shaly complex, 6 to 10 percent slopes, severely eroded
CSD	Conasauga shaly complex, 10 to 15 percent slopes
CUB	Cumberland loam, 2 to 6 percent slopes
CUC2	Cumberland loam, 6 to 10 percent slopes, eroded
CVB3	Cumberland silty clay loam, 2 to 6 percent slopes, severely eroded
CVC3	Cumberland silty clay loam, 6 to 10 percent slopes, severely eroded
DdB2	Dewey silt loam, 2 to 6 percent slopes, eroded
DdC2	Dewey silt loam, 6 to 10 percent slopes, eroded
DeC3	Dewey silty clay loam, 6 to 10 percent slopes, severely eroded
DeD3	Dewey silty clay loam, 10 to 15 percent slopes, severely eroded
DeE3	Dewey silty clay loam, 15 to 25 percent slopes, severely eroded
EdA	Etowah loam, 0 to 2 percent slopes
EdB	Etowah loam, 2 to 6 percent slopes
EdC	Etowah loam, 6 to 10 percent slopes
Ens	Ennis silt loam, local alluvium
FfB2	Farragut silt loam, 2 to 6 percent slopes, eroded
FgB3	Farragut silty clay loam, 2 to 6 percent slopes, severely eroded
FgC3	Farragut silty clay loam, 6 to 10 percent slopes, severely eroded
FgD3	Farragut silty clay loam, 10 to 15 percent slopes, severely eroded
FmB	Fullerton cherty silt loam, 2 to 6 percent slopes
FmC	Fullerton cherty silt loam, 6 to 10 percent slopes
FmD	Fullerton cherty silt loam, 10 to 15 percent slopes
FmE	Fullerton cherty silt loam, 15 to 25 percent slopes
FmF	Fullerton cherty silt loam, 25 to 60 percent slopes
FnC3	Fullerton cherty silty clay loam, 6 to 10 percent slopes, severely eroded
FnD3	Fullerton cherty silty clay loam, 10 to 15 percent slopes, severely eroded
FnE3	Fullerton cherty silty clay loam, 15 to 25 percent slopes, severely eroded
GDF	Gilpin-Dekalb stony complex, 25 to 60 percent slopes
Gul	Gullied land
Gut	Guthrie silt loam, clay subsoil variant
HGB	Hartsells fine sandy loam, 2 to 6 percent slopes
HGC	Hartsells fine sandy loam, 6 to 10 percent slopes
HXA	Huntington silt loam, acid variant, local alluvium
JaC	Jefferson gravelly fine sandy loam, 6 to 10 percent slopes
JaD	Jefferson gravelly fine sandy loam, 10 to 15 percent slopes
JaE	Jefferson gravelly fine sandy loam, 15 to 25 percent slopes
KjD	Klinesville shaly silt loam, 10 to 15 percent slopes
KjE	Klinesville shaly silt loam, 15 to 25 percent slopes
KjF	Klinesville shaly silt loam, 25 to 60 percent slopes
LaE	Lehew-Ramsey gravelly fine sandy loams, 15 to 25 percent slopes
LaF	Lehew-Ramsey gravelly fine sandy loams, 25 to 60 percent slopes
LbB	Lehew-Dekalb gravelly fine sandy loams, 2 to 6 percent slopes
LbC	Lehew-Dekalb gravelly fine sandy loams, 6 to 10 percent slopes
LbD	Lehew-Dekalb gravelly fine sandy loams, 10 to 15 percent slopes
Led	Local alluvial land, moderately wet
LhE3	Lehew-Ramsey gravelly fine sandy clay loams, 15 to 25 percent slopes, severely eroded
LIA	Landisburg cherty silt loam, 0 to 2 percent slopes
LIB	Landisburg cherty silt loam, 2 to 6 percent slopes
LIC	Landisburg cherty silt loam, 6 to 10 percent slopes
LJA	Leadvale silt loam, 0 to 2 percent slopes
LJB	Leadvale silt loam, 2 to 6 percent slopes
LKB	Locust gravelly fine sandy loam, 2 to 6 percent slopes
LLD3	Lehew-Dekalb gravelly fine sandy clay loams, 10 to 15 percent slopes, severely eroded
MaB	Monongahela fine sandy loam, 2 to 6 percent slopes
MaC	Monongahela fine sandy loam, 6 to 10 percent slopes
MbB	Monongahela gravelly silt loam, 2 to 6 percent slopes
McC3	Montevallo-Klinesville shaly silt loams, 6 to 10 percent slopes, severely eroded
McD	Montevallo-Klinesville shaly silt loams, 10 to 15 percent slopes
McD3	Montevallo-Klinesville shaly silt loams, 10 to 15 percent slopes, severely eroded
McE	Montevallo-Klinesville shaly silt loams, 15 to 25 percent slopes
McE3	Montevallo-Klinesville shaly silt loams, 15 to 25 percent slopes, severely eroded
McF	Montevallo-Klinesville shaly silt loams, 25 to 60 percent slopes
MdB	Montevallo shaly silt loam, 2 to 6 percent slopes
MdC	Montevallo shaly silt loam, 6 to 10 percent slopes
MeB	Muse silt loam, 2 to 6 percent slopes
MeB2	Muse silt loam, 2 to 6 percent slopes, eroded
MeC2	Muse silt loam, 6 to 10 percent slopes, eroded
Mel	Melvin silt loam
MfF	Montevallo slaty silt loam, 25 to 60 percent slopes
MfG	Montevallo slaty silt loam, 60 to 85 percent slopes
NbB	Nolichucky fine sandy loam, 2 to 6 percent slopes
NbC	Nolichucky fine sandy loam, 6 to 10 percent slopes
NbD2	Nolichucky fine sandy loam, 10 to 15 percent slopes, eroded
Pop	Pope fine sandy loam
Pos	Pope shaly silt loam, local alluvium
Pur	Purdy silt loam
RmB	Rarden silt loam, 2 to 6 percent slopes
RmB2	Rarden silt loam, 2 to 6 percent slopes, eroded
RmC2	Rarden silt loam, 6 to 10 percent slopes, eroded
RmD2	Rarden silt loam, 10 to 15 percent slopes, eroded
RnC3	Rarden shaly silty clay loam, shallow, 6 to 10 percent slopes, severely eroded
RnD3	Rarden shaly silty clay loam, shallow, 10 to 15 percent slopes, severely eroded
RnE3	Rarden shaly silty clay loam, shallow, 15 to 25 percent slopes, severely eroded
Rob	Robertsville silt loam, clay subsoil variant
SaA	Sequatchie loam, 0 to 2 percent slopes
SaB	Sequatchie loam, 2 to 6 percent slopes
SaB2	Sequatchie loam, 2 to 6 percent slopes, eroded
SbB2	Sequoia silt loam, 2 to 6 percent slopes, eroded
SbC2	Sequoia silt loam, 6 to 10 percent slopes, eroded
ScB3	Sequoia silty clay loam, 2 to 6 percent slopes, severely eroded
ScC3	Sequoia silty clay loam, 6 to 10 percent slopes, severely eroded
ScD3	Sequoia silty clay loam, 10 to 15 percent slopes, severely eroded
SdF	Steekee stony fine sandy loam, 25 to 60 percent slopes
Spg	Sandy and gravelly land
Spl	Stendal-Philo silt loams
Stl	Stendal silt loam
TwA	Taft silt loam, 0 to 2 percent slopes
TxA	Tupelo silt loam, 0 to 2 percent slopes
TxB2	Tupelo silt loam, 2 to 6 percent slopes, eroded
TyA	Tyler fine sandy loam, 0 to 2 percent slopes
TyB	Tyler fine sandy loam, 2 to 6 percent slopes
WbB2	Waynesboro fine sandy loam, 2 to 6 percent slopes, eroded
WbC2	Waynesboro fine sandy loam, 6 to 10 percent slopes, eroded
WbD2	Waynesboro fine sandy loam, 10 to 15 percent slopes, eroded
WbE2	Waynesboro fine sandy loam, 15 to 25 percent slopes, eroded
WcC3	Waynesboro fine sandy clay loam, 6 to 10 percent slopes, severely eroded
WcD3	Waynesboro fine sandy clay loam, 10 to 15 percent slopes, severely eroded
WcE3	Waynesboro fine sandy clay loam, 15 to 25 percent slopes, severely eroded
WdA	Whitwell silt loam, 0 to 2 percent slopes
WdB	Whitwell silt loam, 2 to 6 percent slopes
WfA	Wolftever silt loam, concretionary variant, 0 to 2 percent slopes
WfB	Wolftever silt loam, concretionary variant, 2 to 6 percent slopes
WqA	Whitwell silt loam, moderately wet, 0 to 2 percent slopes
WqB	Whitwell silt loam, moderately wet, 2 to 6 percent slopes

Soil map constructed 1964 by Cartographic Division, Soil Conservation Service, USDA, from 1960 aerial photographs. Controlled mosaic based on Georgia plane coordinate system, west zone, transverse Mercator projection. 1927 North American datum.

This map is one of a set compiled in 1964 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Georgia College of Agriculture, Agricultural Experiment Stations.

1

N

0 ½ 1 Mile

Scale 1:15 840

0 5 000 Feet

GORDON COUNTY, GEORGIA — SHEET NUMBER 2

(2)

N

WHITFIELD COUNTY

Chestnut Mountain

CHATTAHOOCHEE NATIONAL FOREST

Camp Creek

Spurlock Creek

SOUTHERN

(Joins sheet 1)

(Joins sheet 3)

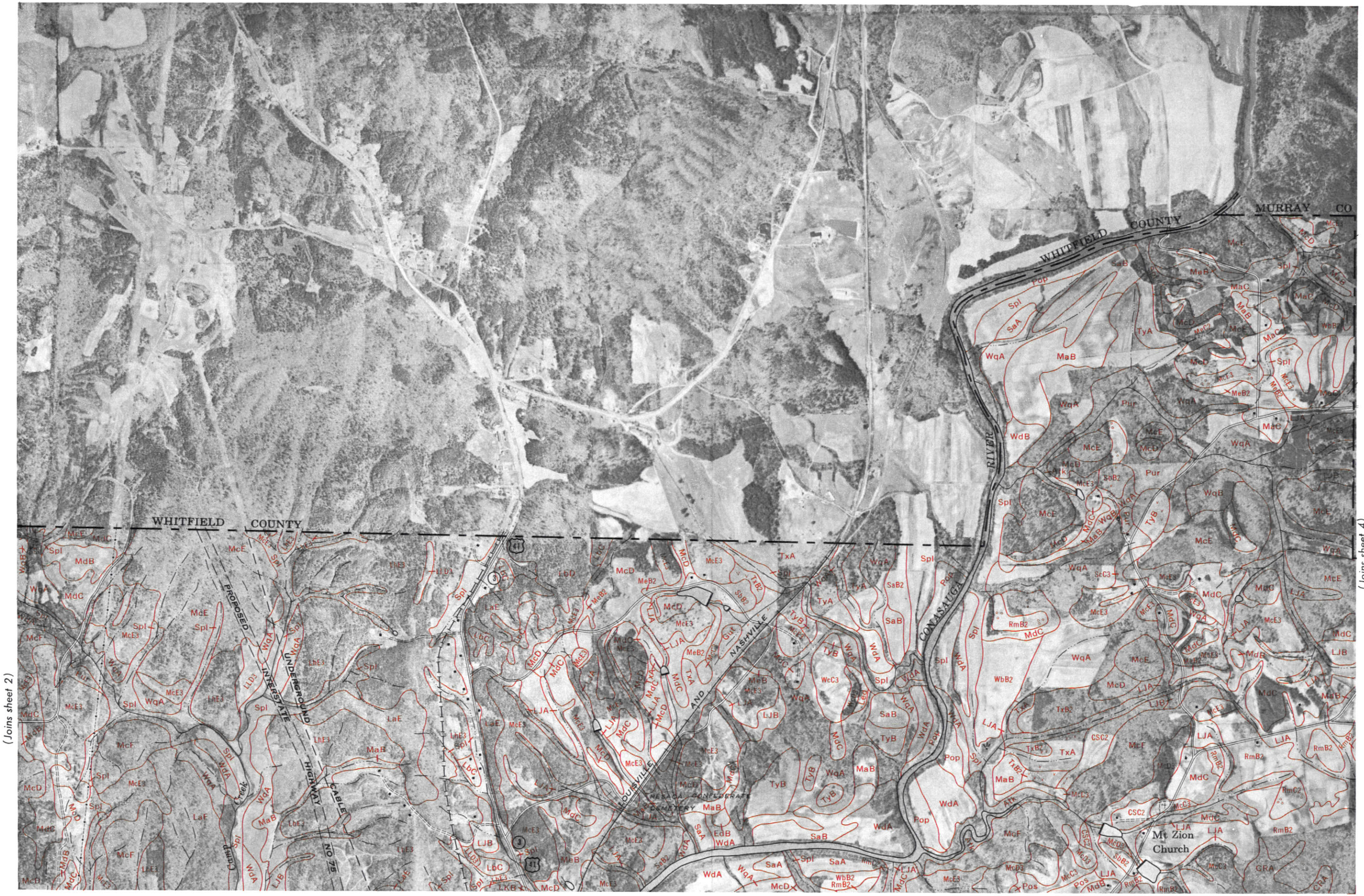
(Joins sheet 8)

0 ½ 1 Mile

Scale 1:15 840

0 5 000 Feet

This map is one of a set compiled in 1964 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Georgia College of Agriculture, Agricultural Experiment Stations.

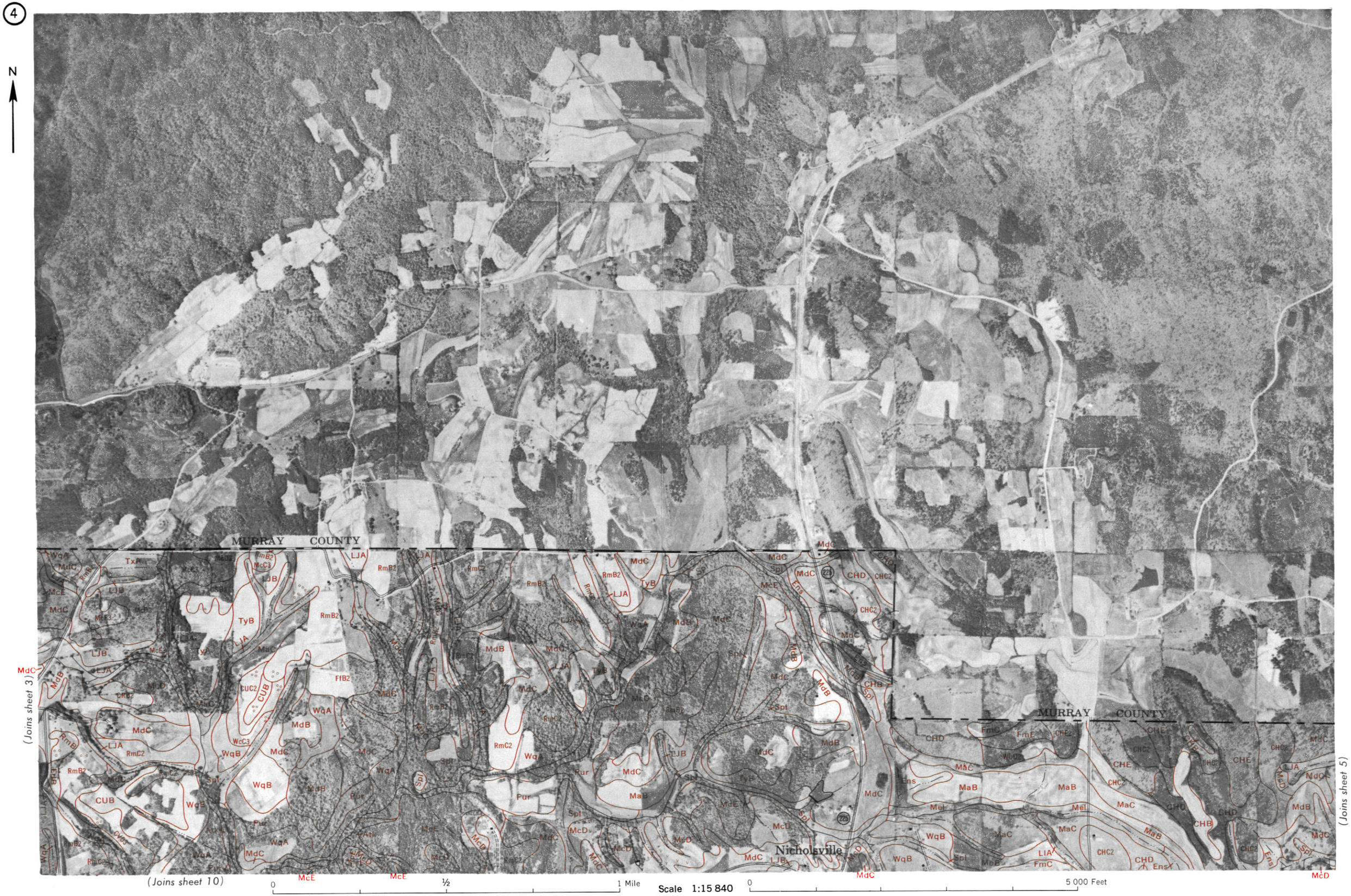


0 ½ 1 Mile

Scale 1:15 840

0 5 000 Feet

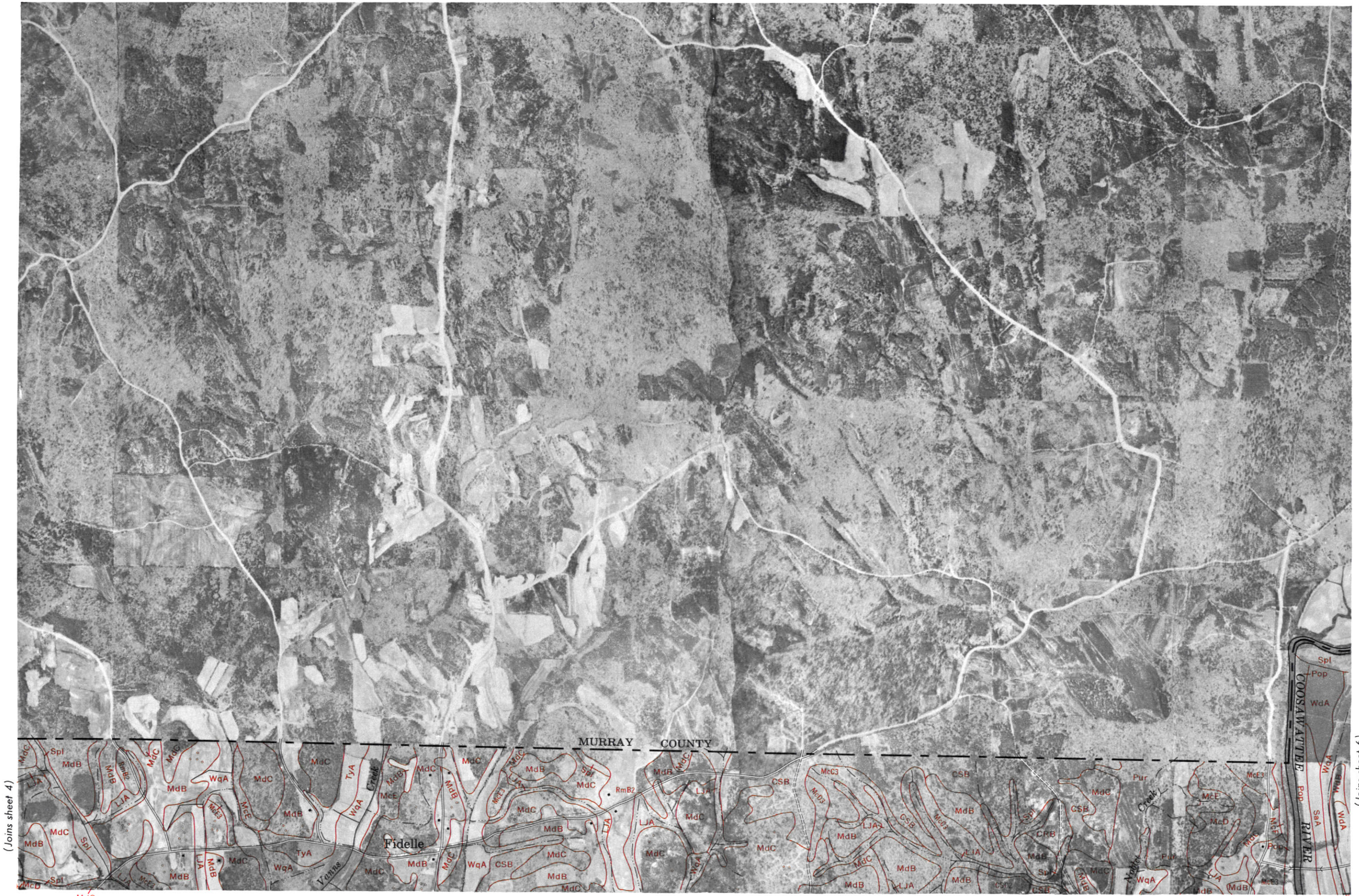
N


4
N
MURRAY COUNTY
MURRAY COUNTY
Nicholsville
(Joins sheet 3)
(Joins sheet 5)
(Joins sheet 10)
0
½
1 Mile
Scale 1:15 840
0
5 000 Feet

GORDON COUNTY, GEORGIA — SHEET NUMBER 5

5

N



(Joins sheet 4)

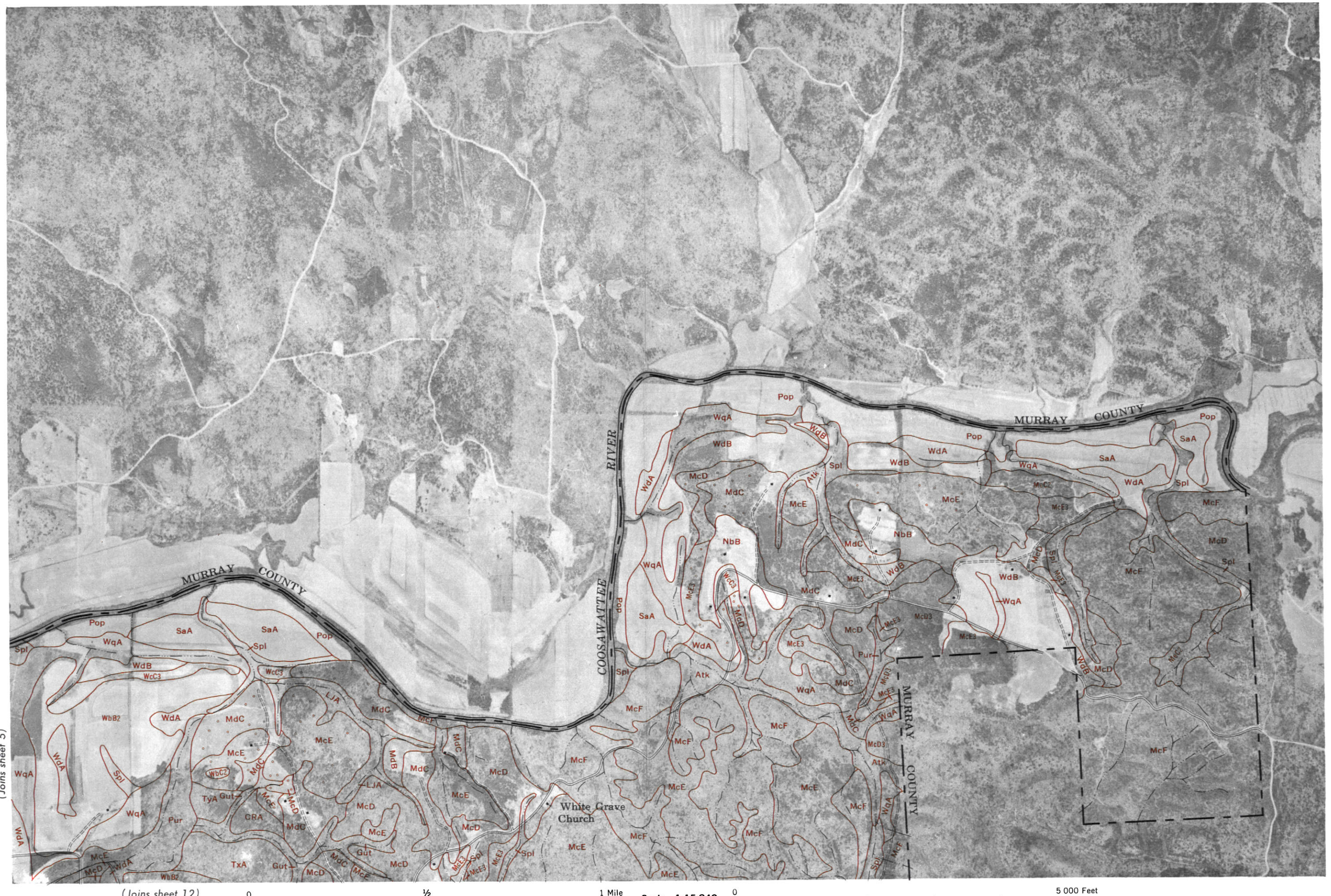
(Joins sheet 6)

(Joins sheet 11)

This map is one of a set compiled in 1964 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Georgia College of Agriculture, Agricultural Experiment Stations.

6

N



(Joins sheet 5)

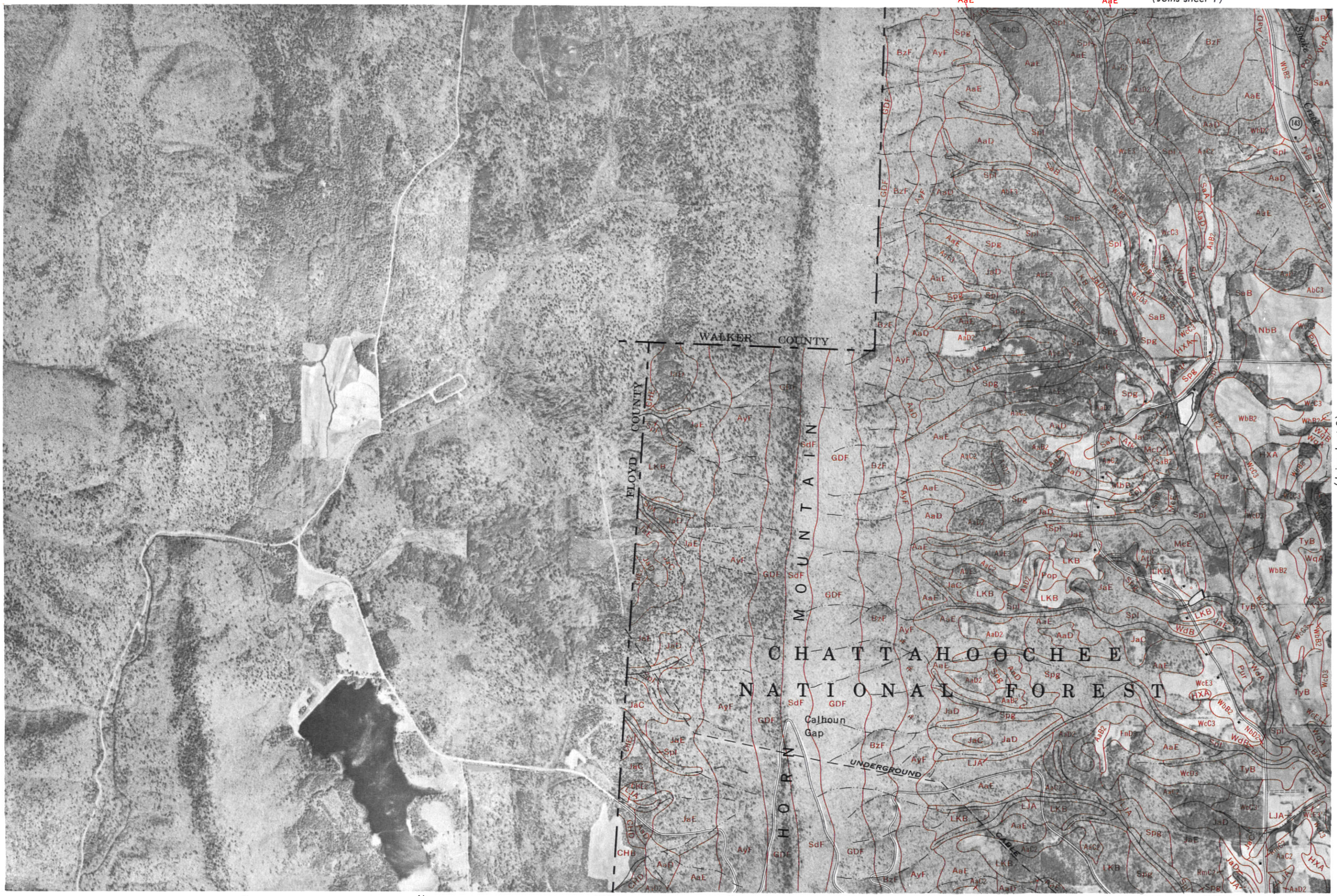
(Joins sheet 12)

0 ½ 1 Mile

Scale 1:15 840

0 5 000 Feet

GORDON COUNTY, GEORGIA — SHEET NUMBER 7



This map is one of a set compiled in 1964 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Georgia College of Agriculture, Agricultural Experiment Stations.

(8)

N

(Joins sheet 2)

(Joins sheet 7)

(Joins sheet 9)

(Joins sheet 15)

Hill City

Sugar Valley Church

CHATTAHOOCHEE NATIONAL FOREST

SOUTHERN

Blue Springs Creek

Smoke Creek

Gut Creek

Lick Creek

0 ½ 1 Mile

Scale 1:15 840

0 5 000 Feet

GORDON COUNTY, GEORGIA — SHEET NUMBER 9

(Joins sheet 3)

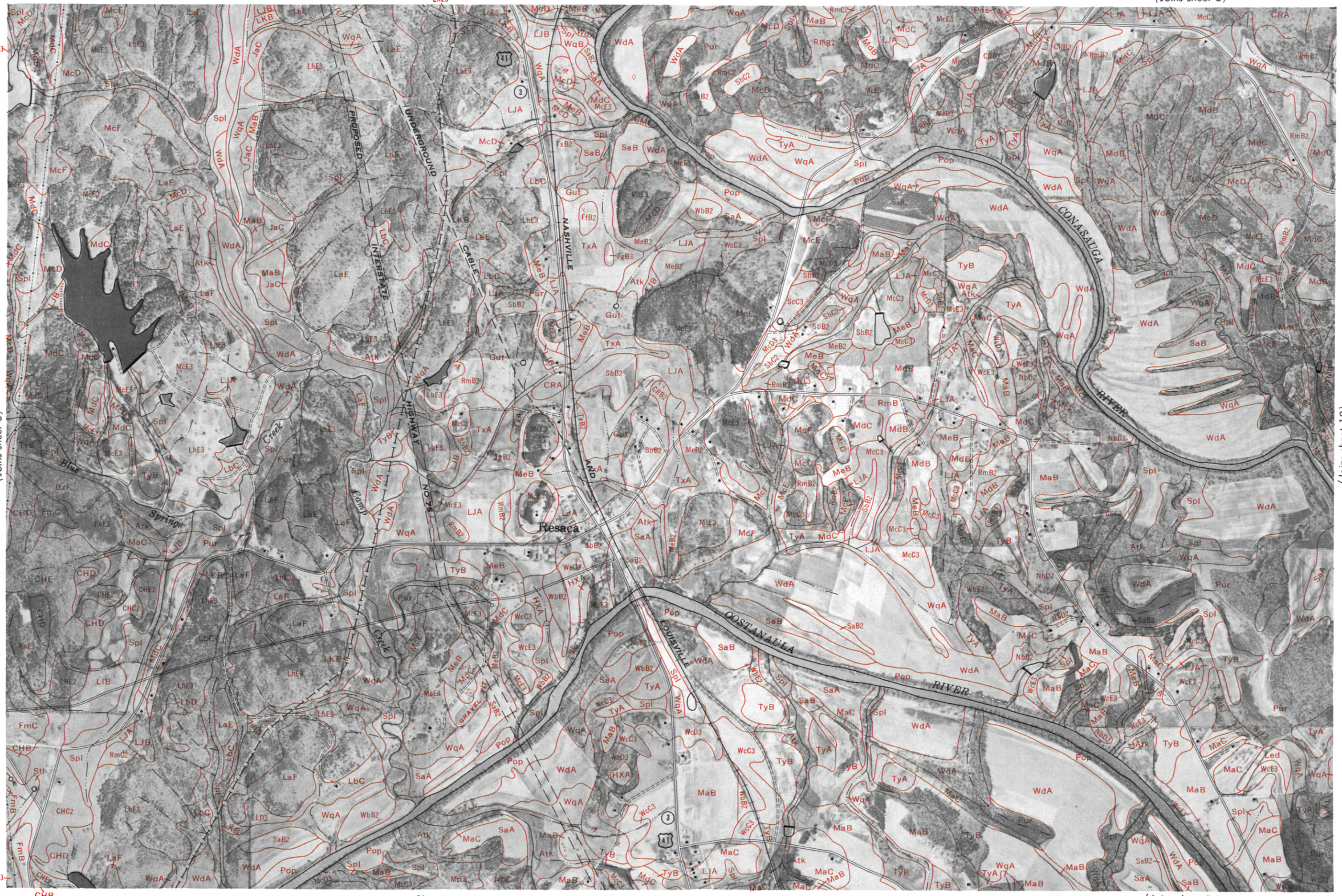
9

N

(Joins sheet 8)

(Joins sheet 10)

This map is one of a set compiled in 1964 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Georgia College of Agriculture, Agricultural Experiment Stations.



0 ½ 1 Mile

Scale 1:15 840

0 5 000 Feet

(Joins sheet 16)

GORDON COUNTY, GEORGIA — SHEET NUMBER 10

10

N

(Joins sheet 4)

(Joins sheet 9)

(Joins sheet 11)

(Joins sheet 17)

Nicholsville

Corinth Church

Soapstick

Pine Chapel Church

COOSAWATTEE RIVER

Dead Creek

Vanns Creek

Scale 1:15 840

0 ½ 1 Mile

0 5 000 Feet

GORDON COUNTY, GEORGIA — SHEET NUMBER 11

(Joins sheet 5)

(Joins sheet 10)

(Joins sheet 12)

(Joins sheet 18)

This map is one of a set compiled in 1964 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Georgia College of Agriculture, Agricultural Experiment Stations.

Evergreen Church

Audubon

Vanns Creek

Pine Log Creek

Yarns Creek

Nopter Creek

COOSAWATTEE RIVER

0 ½ 1 Mile

Scale 1:15 840

0 5 000 Feet

GORDON COUNTY, GEORGIA — SHEET NUMBER 12

12

(Joins sheet 6)

N

MURRAY COUNTY

COOSAWATTEE RIVER

Banks Chapel

Petersburg

Little

(Joins sheet 11)

(Joins sheet 13)

(Joins sheet 19)

0 ½ 1 Mile

Scale 1:15 840

0 5 000 Feet

This map is one of a set compiled in 1964 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Georgia College of Agriculture, Agricultural Experiment Stations.

(Joins sheet 12)

MURRAY COUNTY

MURRAY COUNTY

GILMER COUNTY

Hopewell Church

Oakman

NASHVILLE

LOUISVILLE

TALKING ROCK CREEK

N

0 ½ 1 Mile

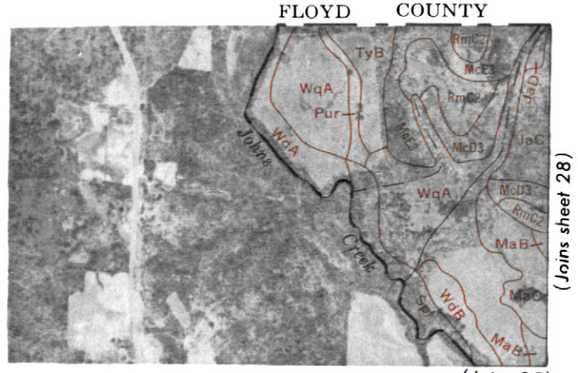
Scale 1:15 840

0 5 000 Feet

(Joins sheet 20)

GORDON COUNTY, GEORGIA — SHEET NUMBER 14

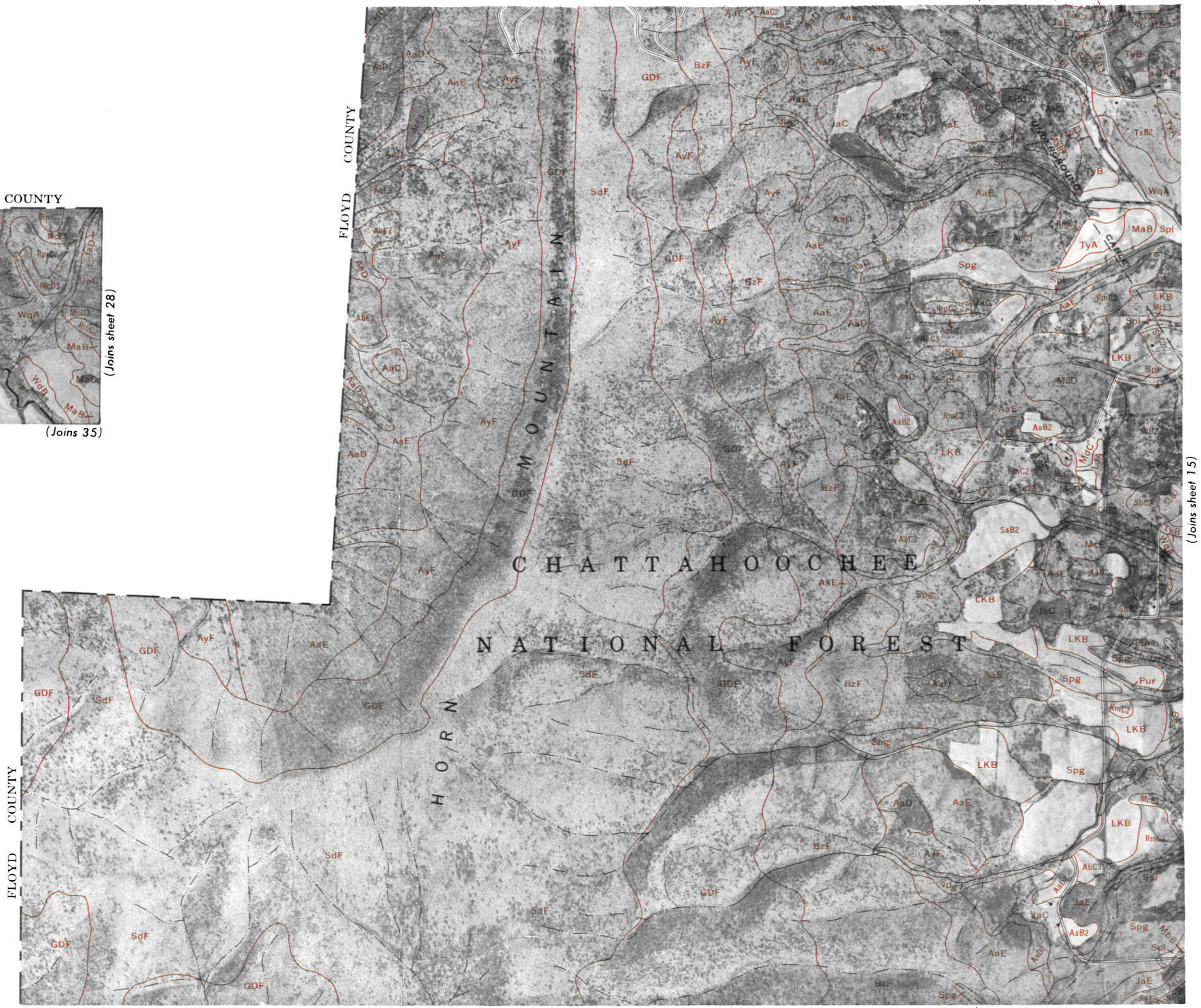
N



(Joins sheet 28)

(Joins 35)

(Joins sheet 7)



(Joins sheet 15)

(Joins sheet 21)

0 ½ 1 Mile

Scale 1:15 840

0 5 000 Feet

GORDON COUNTY, GEORGIA — SHEET NUMBER 15

This map is one of a set compiled in 1964 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Georgia College of Agriculture, Agricultural Experiment Stations.

16

(Joins sheet 9)

N

OOSTANAULA RIVER

Hall Church

Damascus Church

David Pond

PROPOSED INTERSTATE HIGHWAY

NASHVILLE AND LOUISVILLE

(Joins sheet 15)

(Joins sheet 17)

(Joins sheet 23)

0 ½ 1 Mile

Scale 1:15 840

0 5 000 Feet

GORDON COUNTY, GEORGIA — SHEET NUMBER 17

(Joins sheet 10)

17

N

(Joins sheet 16)

(Joins sheet 18)

This map is one of a set compiled in 1964 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Georgia College of Agriculture, Agricultural Experiment Stations.

COOSAWATTEE RIVER

CONASAUGA RIVER

Moss Memorial Church

Hunts Corner

GRAVEL PIT

Four Mile Creek

Crane Eater Cr.

(Joins sheet 24)

0 ½ 1 Mile

Scale 1:15 840

0 5 000 Feet

GORDON COUNTY, GEORGIA — SHEET NUMBER 18

18

N

(Joins sheet 11)

(Joins sheet 17)

(Joins sheet 19)

(Joins sheet 25)

COOSAWATTEE RIVER

SALACOA CREEK

Redbud

Pleasant Hill Church

Red Bud School

Mt Pleasant Church

Pine Grove Church

Lick Creek

Scale 1:15 840

0 ½ 1 Mile

0 5 000 Feet

GORDON COUNTY, GEORGIA — SHEET NUMBER 19

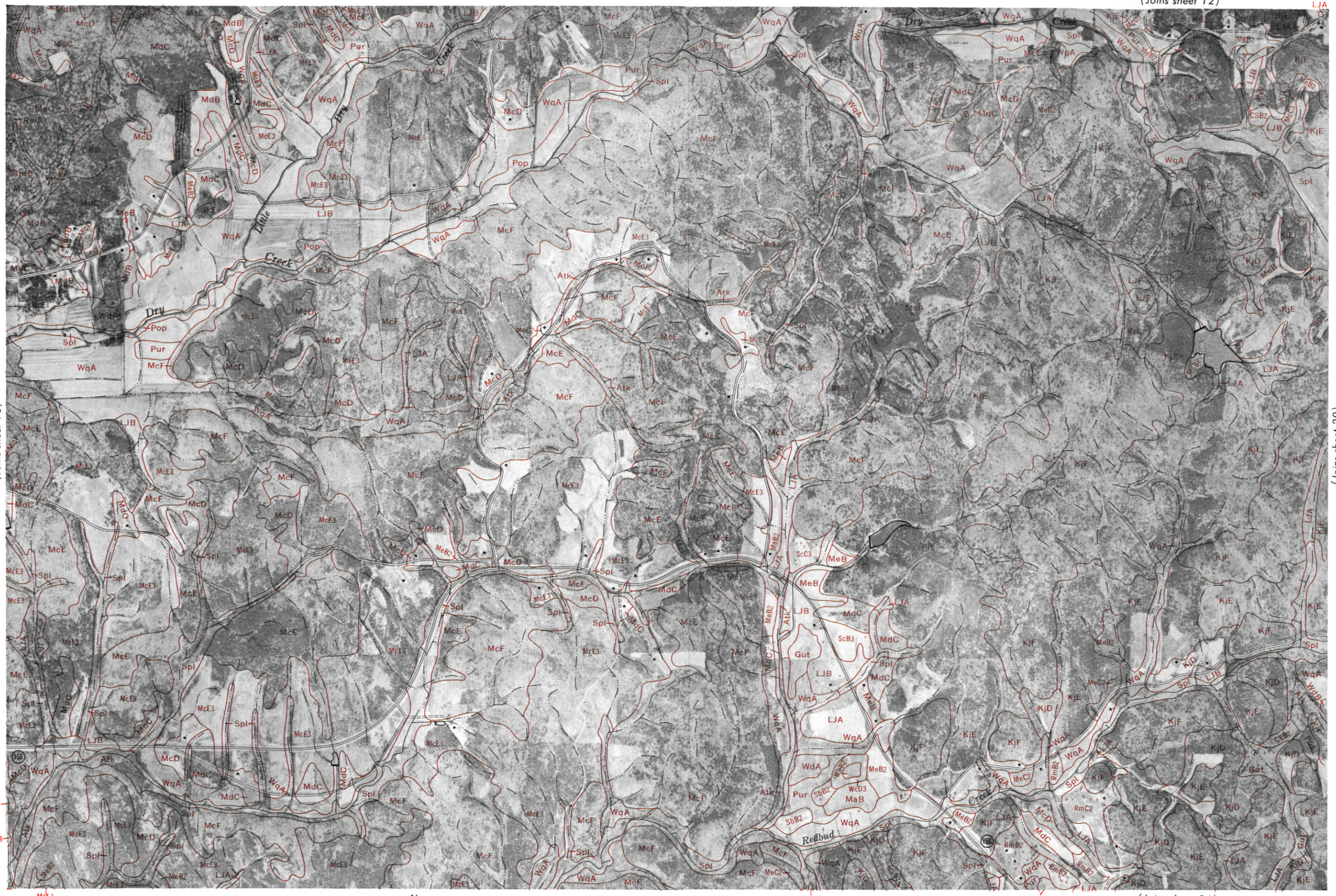
(Joins sheet 12)

(Joins sheet 18)

(Joins sheet 20)

(Joins sheet 26)

This map is one of a set compiled in 1964 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Georgia College of Agriculture, Agricultural Experiment Stations.



20

N

(Joins sheet 13)

(Joins sheet 19)

(Joins sheet 27)

Oakman

NASHVILLE

LOUISVILLE

ROCK CREEK

TALKING

Long Branch

Raccoon

GILMER COUNTY

PICKENS COUNTY

0 ½ 1 Mile

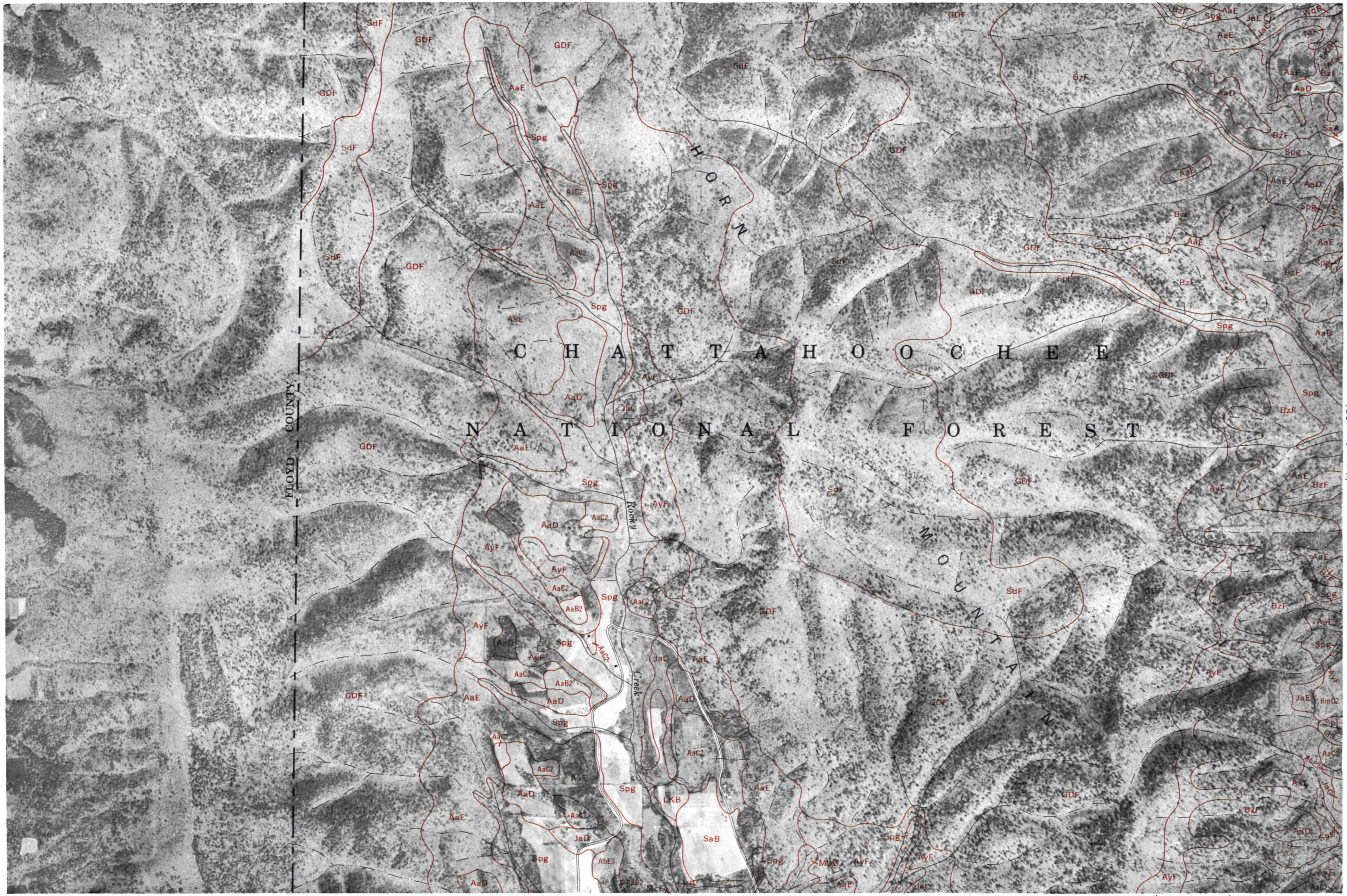
Scale 1:15 840

0 5 000 Feet

(Joins sheet 14)

21

This map is one of a set compiled in 1964 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Georgia College of Agriculture, Agricultural Experiment Stations.



N

(Joins sheet 22)

(Joins sheet 28)

0 ½ 1 Mile

Scale 1:15 840

0 5 000 Feet

GORDON COUNTY, GEORGIA — SHEET NUMBER 22

22

N

(Joins sheet 15)

(Joins sheet 21)

(Joins sheet 23)

(Joins sheet 29)

CHATTAHOOCHEE NATIONAL FOREST

OOSTANAULA RIVER

SOUTHERN RAILWAY

CABLE UNDERGROUND

New Zion Church

0 ½ 1 Mile

Scale 1:15 840

0 5 000 Feet

GORDON COUNTY, GEORGIA — SHEET NUMBER 23

(Joins sheet 16)

(Joins sheet 22)

(Joins sheet 24)

(Joins sheet 30)

This map is one of a set compiled in 1964 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Georgia College of Agriculture, Agricultural Experiment Stations.

Echota

New Echota Church

New Town

Harmony Church

CALHOUN

NORTHWEST GRANCH AGRICULTURAL EXPERIMENT STATION

OOSTANAULA RIVER

OOSTANAULA CREEK

NASHVILLE

LOUISVILLE AND

PROPOSED INTERSTATE HIGHWAY

0 ½ 1 Mile

Scale 1:15 840

0 5 000 Feet

(Joins sheet 17)

N

Crane Church

Eater Creek

Antioch Church

(Joins sheet 23)

(Joins sheet 25)

(Joins sheet 31)

0 ½ 1 Mile

Scale 1:15 840

0 5 000 Feet

GORDON COUNTY, GEORGIA — SHEET NUMBER 25

(Joins sheet 18)

25

N

This map is one of a set compiled in 1964 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Georgia College of Agriculture, Agricultural Experiment Stations.

(Joins sheet 24)

(Joins sheet 26)

(Joins sheet 32)

Bethesda Church

Lewis Corner

Pleasant Valley Church

LOVES BRIDGE

NAPIER CREEK

Salacoa Creek

Lick Creek

0 ½ 1 Mile

Scale 1:15 840

0 5 000 Feet

26

N

(Joins sheet 19)

(Joins sheet 25)

(Joins sheet 27)

(Joins sheet 33)

RED BONE RIDGE

Redbud Creek

Lick Creek

Lick Creek

Ranger

NASHVILLE

LOUISVILLE

Scale 1:15 840

0 ½ 1 Mile

0 5 000 Feet

(Joins sheet 20)

(Joins sheet 26)

(Joins sheet 34)

This map is one of a set compiled in 1964 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Georgia College of Agriculture, Agricultural Experiment Stations.

27

N

Scale 1:15 840

0 ½ 1 Mile

0 5 000 Feet

(Joins sheet 21)

N

FLOYD COUNTY

CHATTAHOOCHEE NATIONAL FOREST

MOUNTAIN

West Union Church

Johnston Chapel

Rocky Creek

FLOYD COUNTY

(Joins inset, sheet 14)

(Joins sheet 29)

(Joins sheet 35)

0 ½ 1 Mile

Scale 1:15 840

0 5 000 Feet

(Joins sheet 22)

29

N

(Joins sheet 28)

(Joins sheet 30)

This map is one of a set compiled in 1964 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Georgia College of Agriculture, Agricultural Experiment Stations.

CHATTAHOOCHEE NATIONAL FOREST

Oostanaula Church

Oostanaula School

Oostanaula

Reeves

Liberty Cumberland Church

Liberty School

Nelson Lake

OOSTANAULA RIVER

SOUTHERN UNDERGROUND CABLE

McD3

(Joins sheet 36)

Scale 1:15 840

0 ½ 1 Mile

0 5 000 Feet

30

N

(53) (Joins sheet 23)

NORTHWEST BRANCH AGRICULTURAL EXPERIMENT STATION

CALHOUN

NASHVILLE

LOUISVILLE

Coosawattee

Creek

Blackwood

Creek

Nelson Lake

PROPOSED INTERSTATE HIGHWAY

Bellwood School

(Joins sheet 29)

(Joins sheet 31)

(Joins sheet 37)

Spl

McF

Gut

0 ½ 1 Mile

Scale 1:15 840

0 5 000 Feet

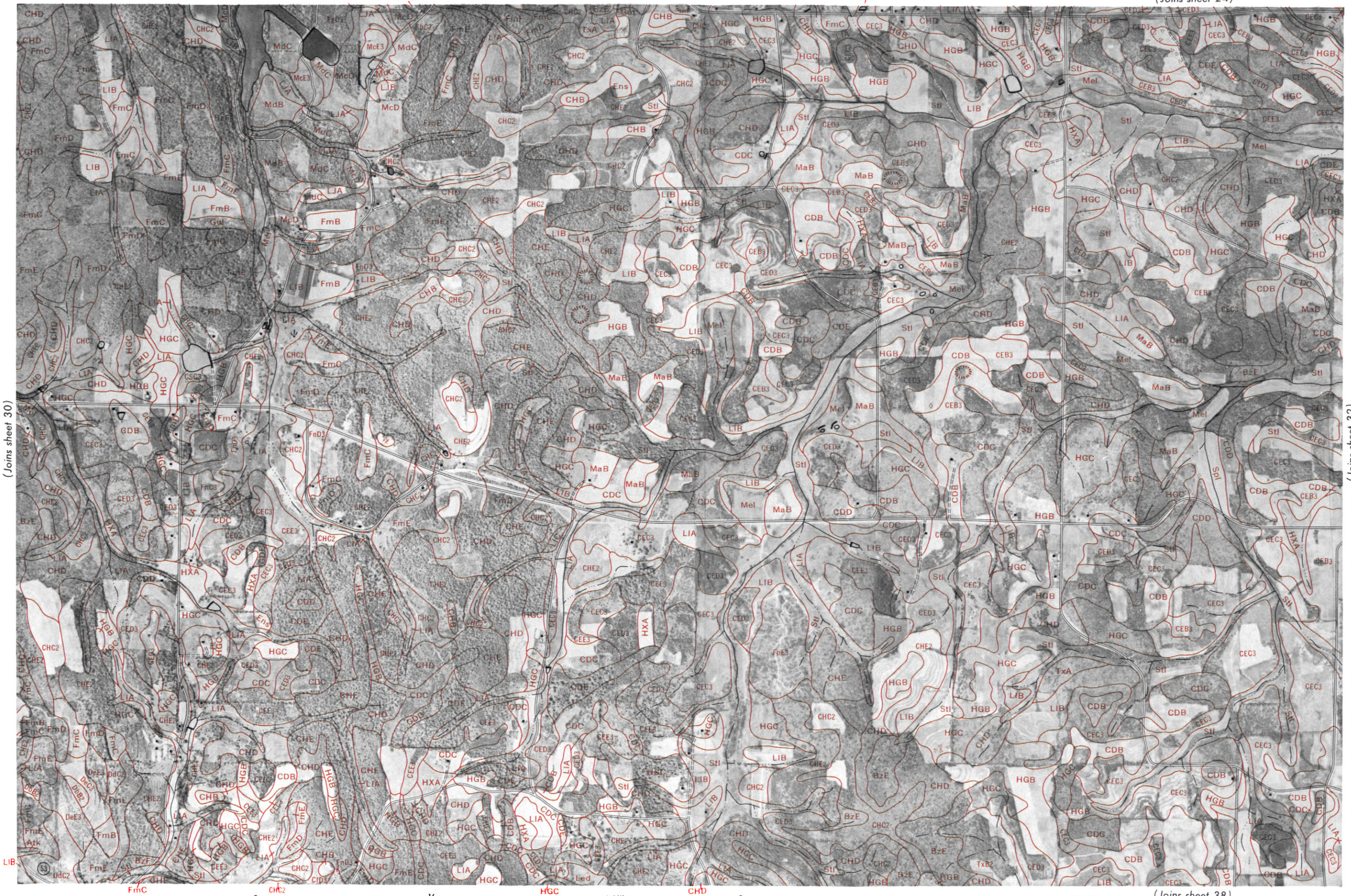
GORDON COUNTY, GEORGIA — SHEET NUMBER 31

(Joins sheet 24)

(Joins sheet 30)

(Joins sheet 32)

(Joins sheet 38)



This map is one of a set compiled in 1964 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Georgia College of Agriculture, Agricultural Experiment Stations.

Scale 1:15 840

0 ½ 1 Mile

0 5 000 Feet

GORDON COUNTY, GEORGIA — SHEET NUMBER 32

32

(Joins sheet 25)

CEC3

WdB

N

(Joins sheet 31)

(Joins sheet 33)

(Joins sheet 39)

Dewg Lake

Cash

Big Spring

Mt Olive Church

Bethlehem Church

Pine Log Creek

Jacks Creek

0 ½ 1 Mile

Scale 1:15 840

0 5 000 Feet

GORDON COUNTY, GEORGIA — SHEET NUMBER 33

(Joins sheet 26)

(Joins sheet 32)

(Joins sheet 34)

(Joins sheet 40)

This map is one of a set compiled in 1964 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Georgia College of Agriculture, Agricultural Experiment Stations.

Salacoa Creek

Pinhook Creek

0 ½ 1 Mile

Scale 1:15 840

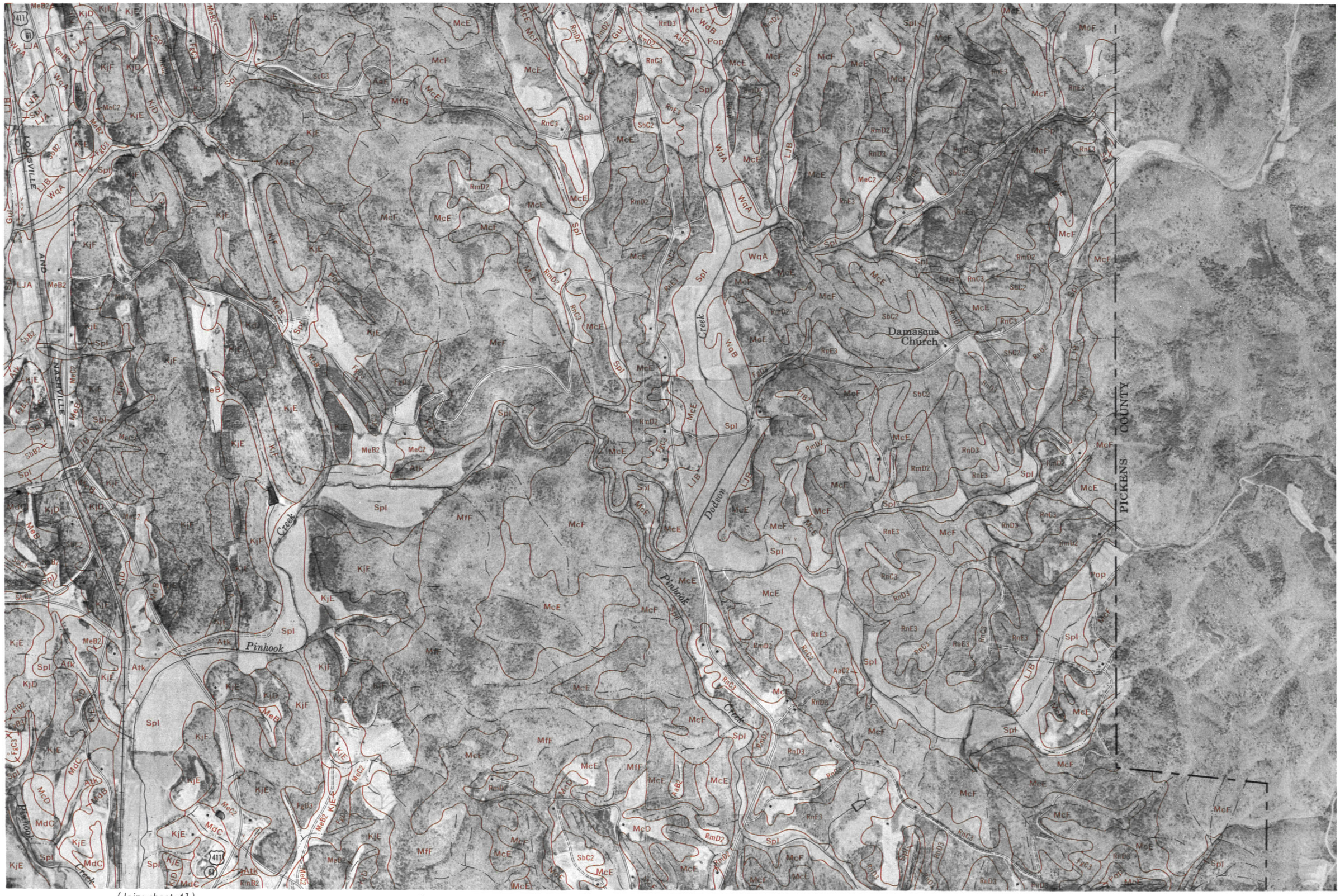
0 5 000 Feet

34

(Joins sheet 27)

N

(Joins sheet 33)



(Joins sheet 41)

0 ½ 1 Mile

Scale 1:15 840

0 5 000 Feet

(Joins inset, sheet 14) | (Joins sheet 28)

GORDON COUNTY, GEORGIA — SHEET NUMBER 35

This map is one of a set compiled in 1964 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Georgia College of Agriculture, Agricultural Experiment Stations.

CHATTAHOOCHEE NATIONAL FOREST

FLOYD COUNTY

Curryville

Mt Zion Church

Johns Creek

Rocky Creek

OOSTANAULA RIVER

N

Scale 1:15 840

0 ½ 1 Mile

0 5 000 Feet

(Joins sheet 36)

(Joins sheet 42) | (Joins sheet 43)

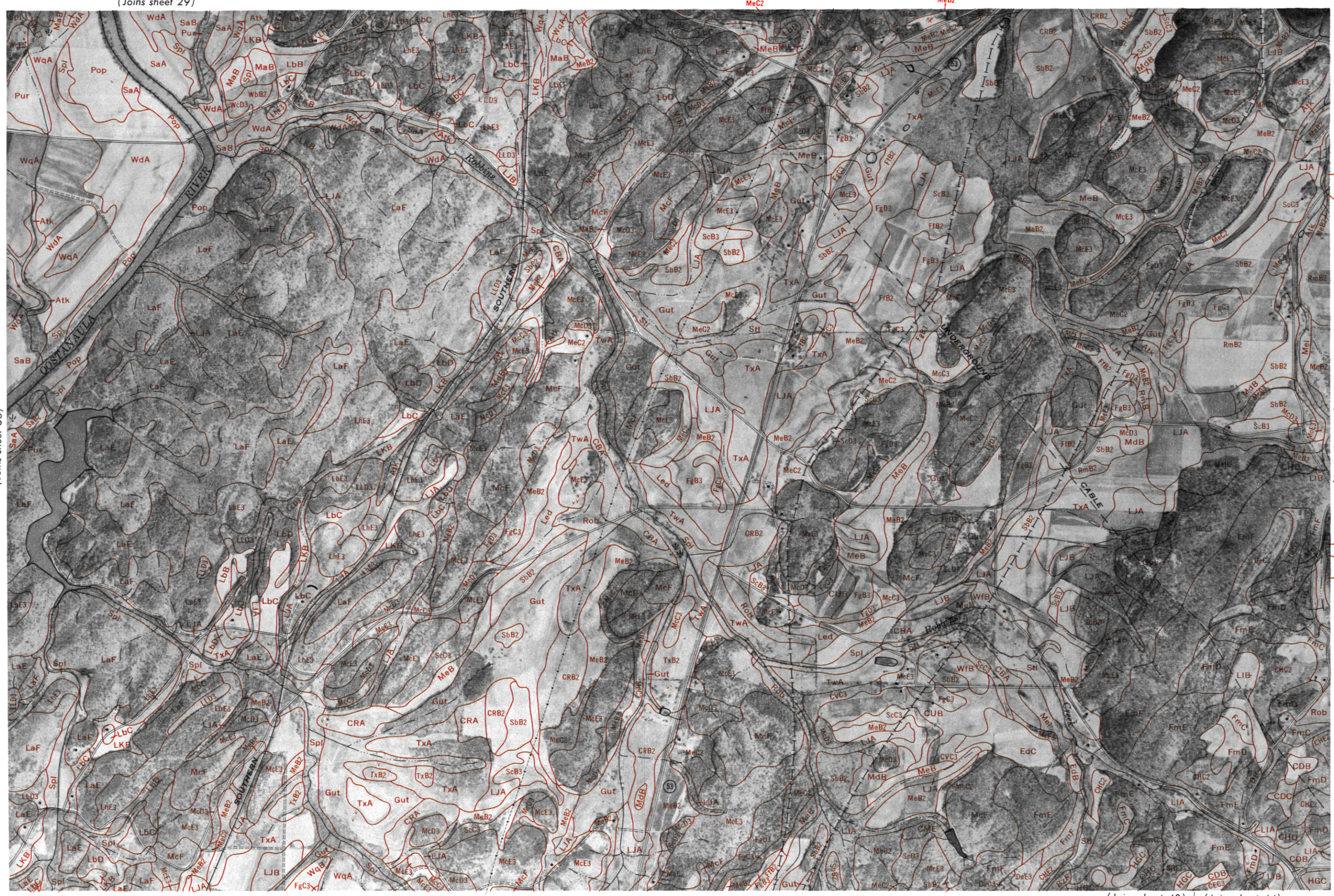
36

N

(Joins sheet 29)

(Joins sheet 35)

(Joins sheet 37)



(Joins sheet 43) | (Joins sheet 44)

0 ½ 1 Mile

Scale 1:15 840

0 5 000 Feet

GORDON COUNTY, GEORGIA — SHEET NUMBER 37

(Joins sheet 30)

37

N

(Joins sheet 36)

(Joins sheet 38)

This map is one of a set compiled in 1964 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Georgia College of Agriculture, Agricultural Experiment Stations.

Nelson Lake

McDaniels

Salem Church

Lilly Pond

Blackwood

Lynn

Oothkalooga Creek

NASHVILLE ST.

LOUISVILLE RD.

HIGHWAY NO. 95

PROPOSED INTERSTATE

0 ½ 1 Mile

Scale 1:15 840

0 5 000 Feet

(Joins sheet 44) | (Joins sheet 45)

GORDON COUNTY, GEORGIA — SHEET NUMBER 38

38

N

(Joins sheet 31)

(Joins sheet 37)

(Joins sheet 39)

(Joins sheet 45) | (Joins sheet 46)

Blackwood

Union Grove Church

Farmville Church

Farmville

Creek

Jacks Creek

0 ½ 1 Mile

Scale 1:15 840

0 5 000 Feet

GORDON COUNTY, GEORGIA — SHEET NUMBER 39

(Joins sheet 32)

39

N

This map is one of a set compiled in 1964 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Georgia College of Agriculture, Agricultural Experiment Stations.

(Joins sheet 38)

(Joins sheet 40)

Wesley Chapel

Sonoraville School

Sonoraville

Jacks Creek

Pine Log Creek

Cedar Creek

Pine Log Cr

0 ½ 1 Mile

Scale 1:15 840

0 5 000 Feet

(Joins sheet 46) | (Joins sheet 47)

GORDON COUNTY, GEORGIA — SHEET NUMBER 40

40

(Joins sheet 33)

N

(Joins sheet 39)

(Joins sheet 41)

Pinhook Creek

Salacoa Creek

Pine Log Creek

0 ½ 1 Mile

Scale 1:15 840

0 5 000 Feet

(Joins sheet 47) | (Joins sheet 48)

(Joins sheet 34)

(Joins sheet 40)

(Joins sheet 48)

This map is one of a set compiled in 1964 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Georgia College of Agriculture, Agricultural Experiment Stations.

Ryo

Pleasant Grove Church

FAIRMOUNT

Salacoa Creek

Pine Log Creek Branch

Vineyard Branch

LOUISVILLE AND NASHVILLE

PICKENS COUNTY

0 ½ 1 Mile

Scale 1:15 840

0 5 000 Feet

N

(Joins sheet 35)

(Joins sheet 43)

42

N

FLOYD COUNTY

OOSTANAULA RIVER

FLOYD COUNTY

0 ½ 1 Mile

Scale 1:15 840

0 5 000 Feet

(Joins sheet 42)

(Joins sheet 44)

This map is one of a set compiled in 1964 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Georgia College of Agriculture, Agricultural Experiment Stations.

N

Plainville

Thursday Church

Oak Grove Church

JOHN GUNN MOUNTAIN

SOUTHERN RAILWAY

FLOYD COUNTY

BARTOW COUNTY

0 ½ 1 Mile

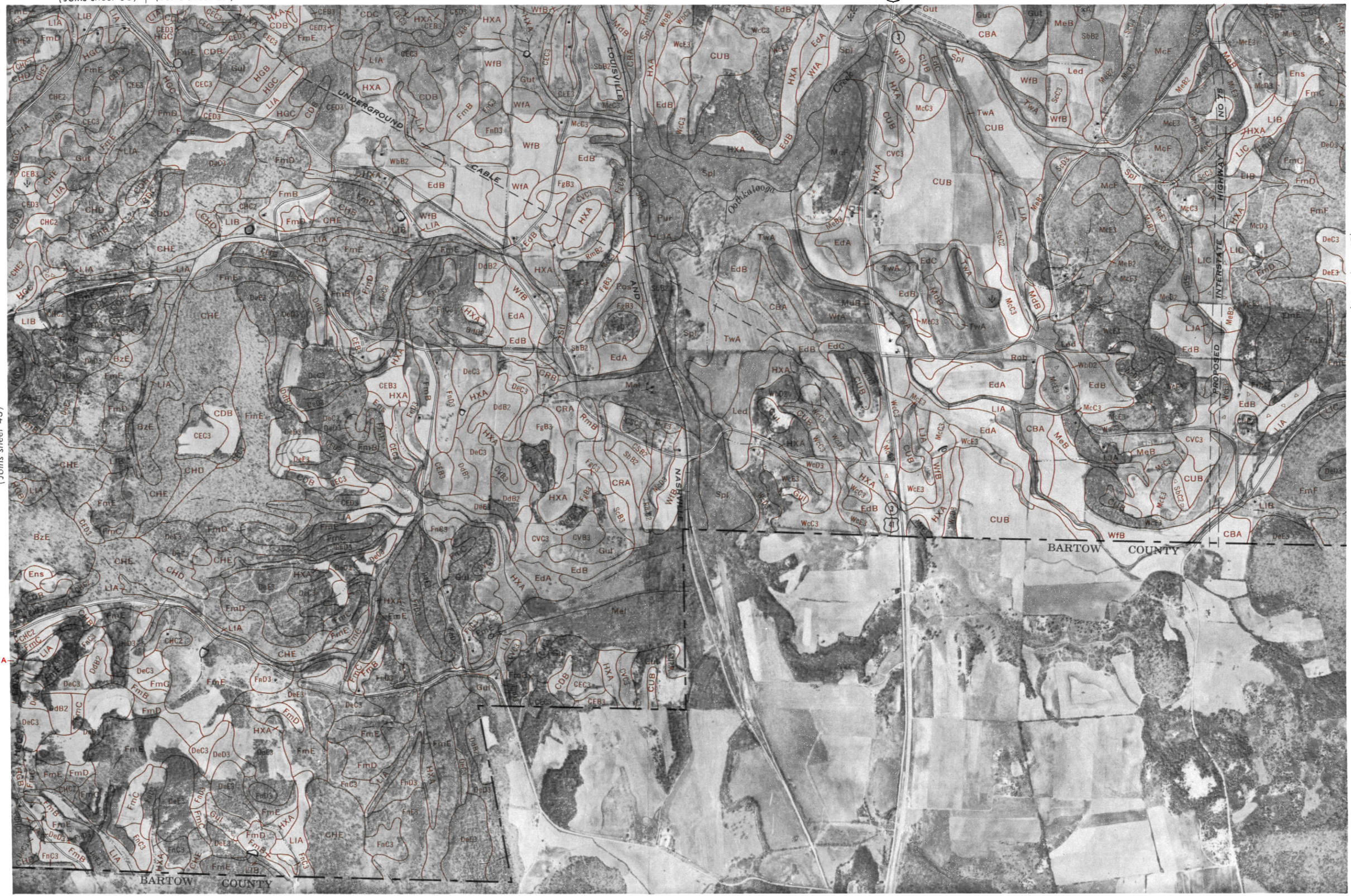
Scale 1:15 840

0 5 000 Feet

(Joins sheet 36) | (Joins sheet 37)

(Joins sheet 43)

(Joins sheet 45)



(Joins sheet 44)

(Joins sheet 46)

N

Plainview Church

BARTOW COUNTY

0 ½ 1 Mile

Scale 1:15 840

0 5 000 Feet

This map is one of a set compiled in 1964 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Georgia College of Agriculture, Agricultural Experiment Stations.

(46)

(Joins sheet 38) | (Joins sheet 39)

(Joins sheet 45)

(Joins sheet 47)

N

Shepards Lake

Cedar Creek

Cedar Creek

Pine Log Cr

BARTOW COUNTY

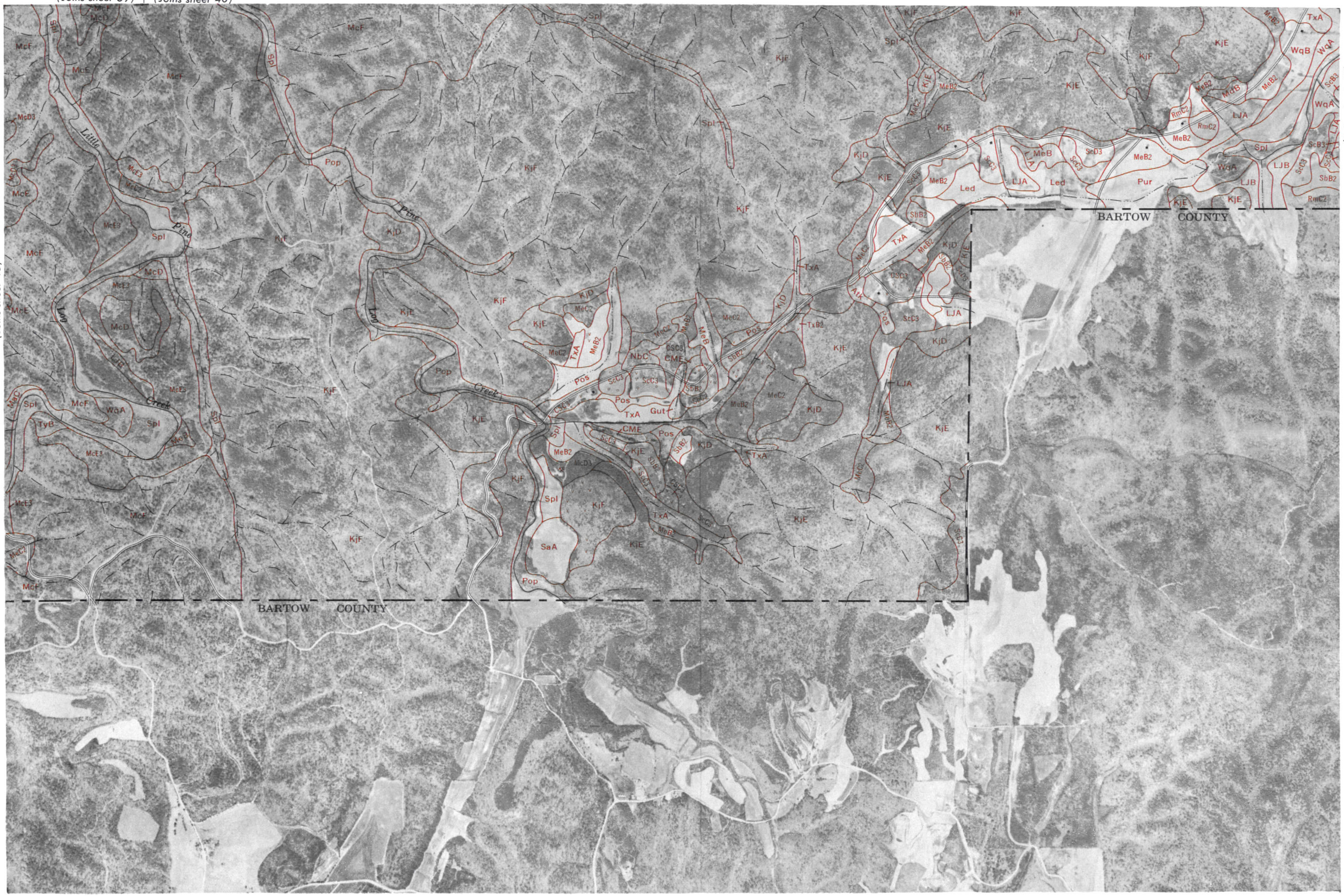
0 ½ 1 Mile

Scale 1:15 840

0 5 000 Feet

(Joins sheet 39) | *(Joins sheet 40)*

(Joins sheet 46)



This map is one of a set compiled in 1964 as part of a soil survey [illegible] Conservation Service, United States Department of Agriculture, and the University of Georgia College of Agriculture, Agricultural Experiment Stations.

0 ½ 1 Mile Scale 1:15 840 0 5 000 Feet

GORDON COUNTY, GEORGIA — SHEET NUMBER 48

48

N (Joins sheet 47)

(Joins sheet 40) | (Joins sheet 41)

61 411

BARTOW COUNTY

PICKENS COUNTY

Creek

0 ½ 1 Mile

Scale 1:15 840

0 5 000 Feet

GORDON COUNTY, GEORGIA

CONVENTIONAL SIGNS

WORKS AND STRUCTURES

Highways and roads

- Dual
- Good motor
- Poor motor
- Trail

Highway markers

- National Interstate
- U. S.
- State

Railroads

- Single track
- Multiple track
- Abandoned

Bridges and crossings

- Road
- Trail, foot
- Railroad
- Ferries
- Ford
- Grade
- R. R. over
- R. R. under
- Tunnel

Buildings

- School
- Church
- Station

Mines and Quarries

Mine dump

Pits, gravel or other

Power lines

Pipe lines

Cemeteries

Dams

Levees

Tanks

Forest fire or lookout station

BOUNDARIES

- National or state
- County
- Reservation
- Land grant

DRAINAGE

Streams

- Perennial
- Intermittent, unclass.

Canals and ditches

Lakes and ponds

- Perennial
- Intermittent

Wells

Springs

Marsh

Wet spot

Alluvial fan

RELIEF

Escarpments

- Bedrock
- Other

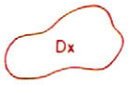
Prominent peaks

Depressions

	Large	Small
Crossable with tillage implements		
Not crossable with tillage implements		
Contains water most of the time		

SOIL SURVEY DATA

Soil boundary and symbol



- Gravel
- Stones
- Rock outcrops
- Chert fragments
- Clay spot
- Sand spot
- Gumbo or scabby spot
- Made land
- Severely eroded spot
- Blowout, wind erosion
- Gullies